
MARICOPA COUNTY
MATERNAL AND CHILD HEALTH
NEEDS ASSESSMENT 2002

PRODUCED BY:
MARICOPA COUNTY DEPARTMENT OF PUBLIC HEALTH

DIVISIONS OF
EPIDEMIOLOGY AND BIO-DEFENSE PREPAREDNESS AND RESPONSE
MATERNAL, CHILD AND FAMILY HEALTH, OFFICE OF FAMILY HEALTH

JULY 2002

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Acknowledgements

The 2002 Maricopa County Maternal and Child Health Needs Assessment was prepared by the Maricopa County Department of Public Health, *Division of Epidemiology and Bio-Defense Preparedness and Response (BDPR)*, in collaboration with the *Division of Maternal, Child and Family Health*.

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Table 1. Comparison of Select Maternal and Child Health Indicators in Maricopa County, Arizona with Healthy People 2000 and 2010 Objectives

Indicator*	Healthy People 2000 Objectives	Healthy People 2010 Objectives	1999	2001
Number of births	None available	None available	51,503	55,624
Number of deaths (<1 year of age)	None available	None available	366	371
Mothers with <12 years education	None available	None available	29.9%	31.0%
Deliveries paid for by AHCCCS [†]	None available	None available	39.7%	43.9%
Percentage of births to teens (≤19)	None available	None available	13.8%	13.0%
Infant mortality rate	7.0 [^]	4.5 [^]	6.8 [‡]	6.2 [‡]
Neonatal mortality rate (<28 days per 1,000 live births)	4.5 [^]	2.9 [^]	4.8	4.4
Postneonatal mortality rate (28 days-11 months per 1,000 live births)	2.5 ⁺	1.2 [^]	2.1	1.9
Low birth weight (<2,500 grams)	5.0% [^]	5.0% [^]	7.0%	6.9%
Very low birth weight (<1,500 grams)	1.0% [^]	0.9% [^]	1.3%	1.1%
Preterm births (<37 weeks)	None available	7.6% [^]	10.1%	10.1%
No prenatal care (PNC)	None available	None available	1.9%	1.6%
PNC beginning in first trimester	90% [^]	90% [^]	75.8%	78.1%
Alcohol abstinence	95% ⁺	94% ⁺	97.8%	98.1%
Cigarette abstinence	90% ⁺	99% [^]	92.1%	92.8%

*Unless otherwise stated, rates are per 1,000.

[^]Objective not met.⁺Objective met.[†]AHCCCS=Arizona Health Care Cost Containment System.[‡]Unlinked data.

SECTION I. INTRODUCTION

The mission of the Maricopa County Department of Public Health (MCDPH) is to promote, preserve, and protect the health of the people and communities in Maricopa County. As part of this mission, the Divisions of Maternal, Child and Family Health and Epidemiology/Bio-Defense Preparedness and Response (BDPR) conduct an annual maternal and child health needs assessment.

The purpose of the needs assessment is to evaluate the status of maternal and child health (MCH) in Maricopa County and assist the MCH programs with identifying needs. The topics selected are based on the Arizona Department of Health Services Office of Women and Children's Health requirements¹ and Healthy People 2000 and 2010 national objectives^{2,3}. These objectives are goals set for the nation to achieve by the years 2000 and 2010, measured by specific health indicators (see Healthy People comparison table on previous page). These documents provide tools to measure improvements in the quality and number of years of healthy life and reduction of health disparities between groups of people.

The 2002 Maternal and Child Health Needs Assessment is an examination of selected maternal and child health indicators for the county as a whole. The assessment begins with the county's demographic profile. Next, the demographic characteristics of mothers and newborns are presented followed by an assessment of nine topics in Maternal and Child Health:

- 1) substance use,
- 2) prenatal care,
- 3) preterm births,
- 4) low birth weight,
- 5) infant mortality,
- 6) teen pregnancy,
- 7) multiple births,
- 8) newborn intensive care units, and
- 9) maternal and newborn transfers.

When appropriate, these topics are examined by several demographic indicators including race/ethnicity, age, educational level, and others. Comparisons between Maricopa County, Arizona, the United States and Healthy People 2000 (HP 2000) and 2010 (HP 2010) objectives are provided when appropriate.

SECTION II. METHODS:

Data Sources, Definitions, and Document Information

DATA SOURCES

The sources of the birth and death data used in this needs assessment were the 1997 through 2001 end of year data files received from the Arizona Department of Health Services (ADHS) with one exception: the 2001 infant death data are preliminary data.

Death certificates for infants were linked with their corresponding birth certificates in order to obtain additional information about the infant, the delivery, the pregnancy, and the mother, that was not available in the death documents. ADHS linked the 1997 and 1998 infant deaths to their birth data, while the 1999 through 2001 data were linked by MCDPH. The percent of infant death certificates linked to infant birth certificates was 94.2% for 1997, 96.9% for 1998, 95.9% for 1999, 98.0% for 2000, and 95.3% for 2001. See Table 1 in Volume II for more details on linked and unlinked data.

Statewide Arizona indicators can be obtained from the “Arizona Health Status and Vital Statistics Report, 2000”⁴ published by the Arizona Department of Health Services. United States indicators can be obtained from the Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics Reports⁵.

The sources of Maricopa County, the state of Arizona, and the United States population data were the United States Census

Bureau⁶⁻⁸, the Arizona Department of Economic Security⁹⁻¹², and the Bureau of Economic Analysis¹³⁻¹⁴.

RACE AND ETHNICITY

The U.S. Census records race and ethnicity separately, so that Hispanics can be of any race and non-Hispanics can be of any race. Race and ethnicity are presented in this needs assessment together, collapsed into a single indicator, including White non-Hispanic (NH), Hispanic/Latino (of all races), Black/African American NH, Native American NH, and Asian NH. In Maricopa County, this classification is consistent with the area’s cultural groupings. “Hispanic” refers to persons who trace their origin or descent to Mexico, Puerto Rico, Cuba, Central America, South America, or other Spanish cultures and can be of any race. Persons are classified by race and ethnicity according to how they identify themselves to census takers or hospitals, or how their relatives identify them to the funeral director upon their death.

In the 2000 Census, persons could identify themselves as belonging to more than one race group. All stated races were recorded. However, Arizona birth and death certificates only record one race. To compute rates, census classifications of two or more races were included in the category of other race.

Some graphs, such as those for race/ethnicity, show “Other/Unknown” categories, while some graphs do not. Therefore, the percentages may not add to 100% in some cases.

DEFINITIONS

The birth rate in this publication is defined as the number of births per 1,000 women of childbearing age (15-44 years old). Birth rates within categories of people (e.g., a race/ethnicity) are the number of births within that group per 1,000 women of childbearing age (15-44 years old) within that group.

child health programs and services should be directed to the Public Health Office, 602-506-4926.

Maternal age is the mother's age at the time she delivered. The low birth weight rate is the percentage of all babies who are born weighing less than 2,500 grams (5.5 pounds). The percentage of babies born weighing less than 1,500 grams (3.3 pounds) at the time of delivery is the very low birth weight rate. The preterm birth rate is the percentage of all babies born before they reach 37 weeks of pregnancy (gestational age).

STATISTICAL SIGNIFICANCE

Some comparisons between groups or years were examined for statistical significance, and if appropriate, this was mentioned. Most comparisons, however, were not examined in this way.

DOCUMENT INFORMATION

All data pertaining to the charts and graphs in this document are included in the second volume, the Maricopa County Maternal and Child Health Needs Assessment 2002: Supplemental Data Tables. Both volumes are located on the Maricopa County Department of Public Health web site, "http://www.maricopa.gov/public_health/epi." At the end of this document, there is a data request form to obtain additional information from the Maricopa County Department of Public Health. Questions pertaining to the data in this Needs Assessment should be directed to the Division of Epidemiology/BDPR, 602-506-6825. Questions pertaining to Maricopa County Department of Public Health's maternal and

Abbreviations Defined

ADHS.....	Arizona Department of Health Services
AHCCCS.....	Arizona Health Care Cost Containment System (Medicaid)
AZ.....	Arizona
BDPR.....	Bio-Defense Preparedness and Response
BEA.....	Bureau of Economic Analysis
CDC.....	Centers for Disease Control and Prevention
DES.....	Arizona Department of Economic Security
HP 2000.....	Healthy People 2000
HP 2010.....	Healthy People 2010
IHS.....	Indian Health Service
IMR.....	Infant Mortality Rate
LBW.....	Low Birth Weight
MC.....	Maricopa County
MCDPH.....	Maricopa County Department of Public Health
MCH.....	Maternal and Child Health
NCHS.....	National Center for Health Statistics
NH.....	Non-Hispanic
NMR.....	Neonatal Mortality Rate
NVSR.....	National Vital Statistics Report
PNC.....	Prenatal Care
PNMR.....	Post-Neonatal Mortality Rate
U.S.....	United States
VLBW.....	Very Low Birth Weight

SECTION III.

POPULATION DEMOGRAPHIC PROFILE

The demographic profile of a population is important in the Maternal and Child Health Needs Assessment because it allows the identification of groups at high risk for negative pregnancy outcomes by age, socioeconomic status, geography, race/ethnicity, household structure, and other variables. Understanding the demographics of the county helps to better target prevention interventions to meet specific maternal and child health needs.

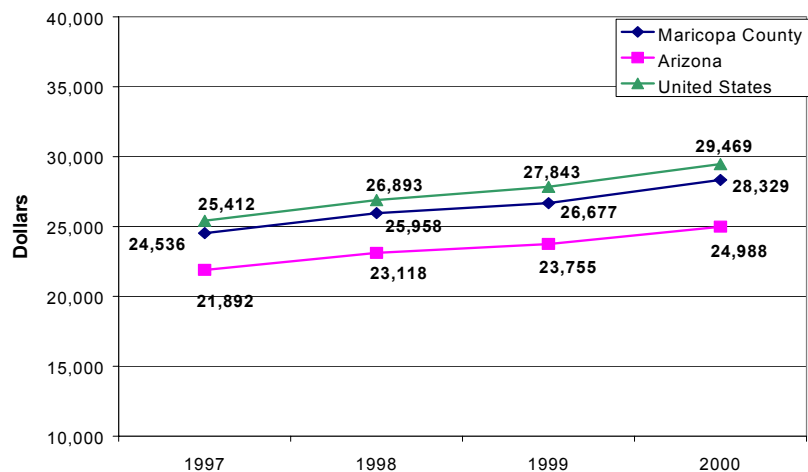
According to the U.S. Census, over five million (5,130,632) people lived in Arizona in the year 2000. More than three million (3,072,149) of them lived in Maricopa County⁶. Between 1990 and 2000, the county population grew 44.8%⁷. Maricopa County is now the fourth largest county in the United States, after Los Angeles CA, Cook (Chicago) IL, and Harris (Houston) TX⁷.

Socioeconomic indicators for Maricopa County were similar to those for the U.S. and Arizona. Table 1 provides a breakdown of these indicators for 1999^{6,8,12}. The U.S. Census identified more than one million (1,132,886) Maricopa County households (one or more people who occupy a space intended for use as separate living quarters). Of the county households, 67.4% belonged to families (two or more people living together that are related by birth, marriage, or adoption), 51.6% belonged to married couple families, and 10.7% to female head of household families (no husband present). The average number of people who occupied a housing unit was 2.67. Slightly more people, 3.21, on average occupied housing units that were classified as family households.

Table 1. Socioeconomic Indicators: Maricopa County, Arizona, and the United States, 1999*

	Maricopa County	Arizona	United States
Families ⁶	67.4%	67.7%	68.1%
Married Couple Family ⁶	51.6%	51.9%	51.7%
Female Heads of Household ⁶	10.7%	11.1%	12.2%
Children <18 years in Household ⁶	36.2%	35.4%	36.0%
Average Household Size ⁶	2.67	2.64	2.59
Average Family Size ⁶	3.21	3.18	3.14
Unemployment Rate ¹²	3.0	4.4	4.2
Poverty Level ⁸	11.7%	13.9%	12.4%

Maricopa County's average personal income from 1997 through 2000 was below the United States' average personal income but above Arizona's average¹³, see Figure 1. The county's average was 96% of the U.S. average, while Arizona's average was 85% of the U.S. average in 2000¹⁴.

Figure 1. Per Capita Personal Income (U.S. BEA data ¹³)

For 1999, the poverty rate of 11.7% in the county was below both the Arizona and the U.S. poverty rates (13.9% and 12.4%, respectively) ⁸. Figure 2 shows Maricopa County's average unemployment rate compared with the United States from 1993 to 2001. Following the U.S. trend, the unemployment rate in the county was low from 1997 through the year 2000 but increased during 2001 ¹².

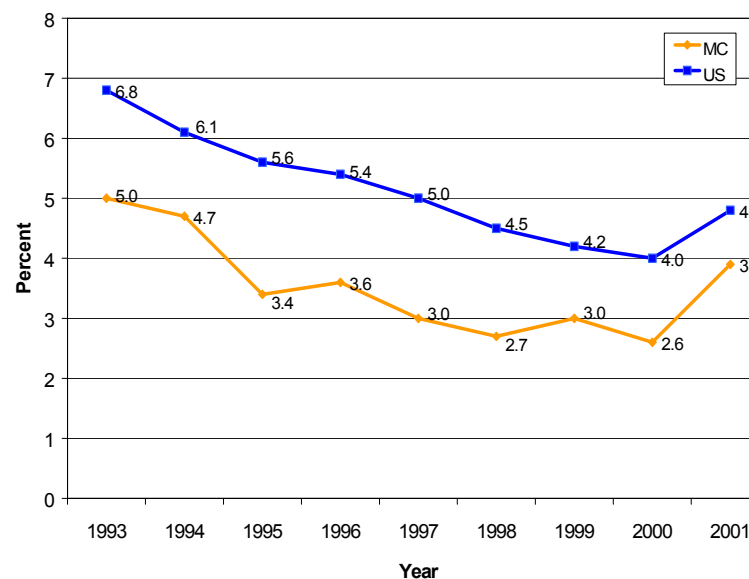
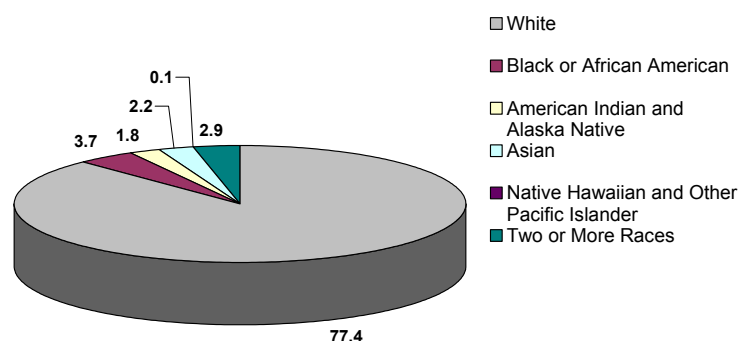
Figure 2. Maricopa County, AZ and the United States' Average Unemployment Rate from 1993 to 2001 (AZ DES data ¹²)

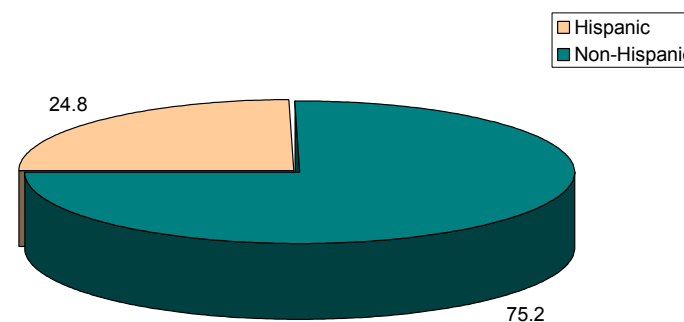
Figure 3 shows the distribution of the Maricopa County population by race, according to the 2000 Census ⁶. The self-reported race of the majority of Maricopa County residents was White (77.4%), while almost 3% of Maricopa County residents reported being of two or more races.

Figure 3. Percent Distribution of the Maricopa County, AZ Population by Race, 2000 ⁶



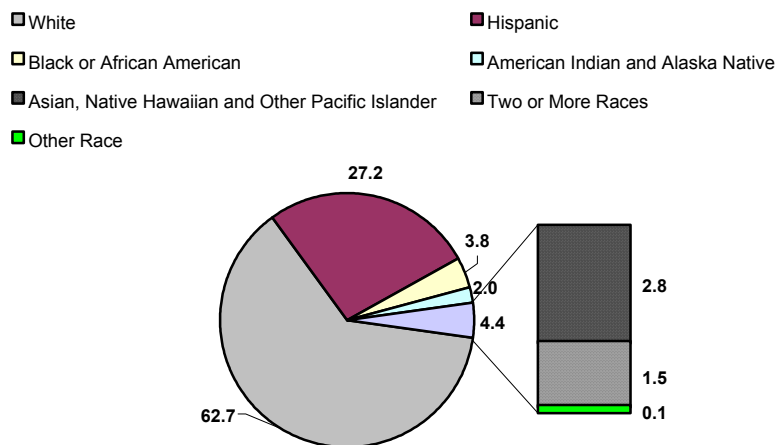
As shown in Figure 4, Hispanics or Latinos of all races accounted for 24.8% of the county's population. The majority (20.3% of the total population) is of Mexican origin.

Figure 4. Percent Distribution of the Maricopa County, AZ Population by Hispanic Ethnicity, 2000 ⁶



The population of women of childbearing age (15 to 44 years) in Maricopa County in the year 2000 was 675,334. This represents 44% of all women and 22% of the total population¹⁰. Figure 5 shows the race/ethnicity distribution of the county's women of childbearing age. Note that Figure 5 includes the percent of Hispanics while Figure 3 did not.

Figure 5. Percent Distribution of the Female Population of Childbearing Age (15-44) in Maricopa County, AZ by Race/Ethnicity, 2000¹⁰



The age distribution of the county population is shown in Figure 6. Children under the age of 15 make up 23% of the population. Adults past the traditional retirement age of 65 comprise almost 12% of the population.

Figure 6. Percent Distribution of Maricopa County, AZ Population by Age Group, 2000⁶

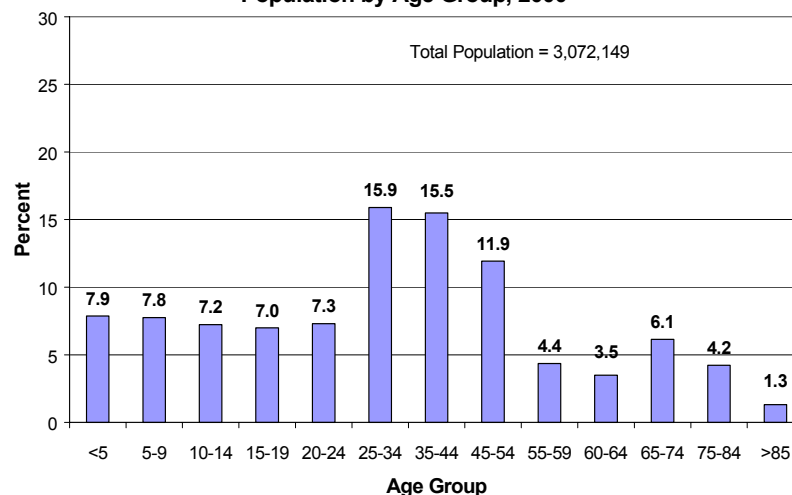
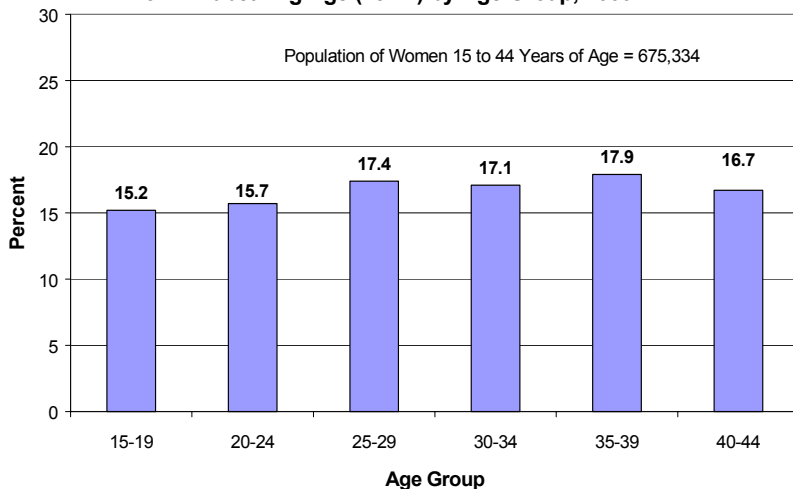


Figure 7. Percent Distribution of Maricopa County, AZ Women of Childbearing Age (15-44) by Age Group, 2000¹⁰



Women of childbearing age (15 to 44 years) are fairly equally distributed across five-year age groups, ranging from 15.2% for the 15 to 19 year old group to 17.9% for the 35 to 39 year old group⁵ (see Figure 7).

A. BIRTH PROFILE

More than 55 thousand babies were born to Maricopa County residents during 2001. The birth rate since 1997 has risen from 77 to approximately 81 births per 1,000 women of childbearing age in 2000 (see Table 2).

Table 2. Birth Rates (per 1,000 Women Age 15-44) Maricopa County, AZ 1997-2001

Year	Births	Population of Women 15-44 ^{*†}	Birth Rate
1997	47,127	608,221 ⁹	77.48
1998	49,324	620,477 ⁹	79.49
1999	51,503	633,465 ⁹	81.30
2000	54,470	675,334 ¹⁰	80.66
2001	55,624	NA	NA

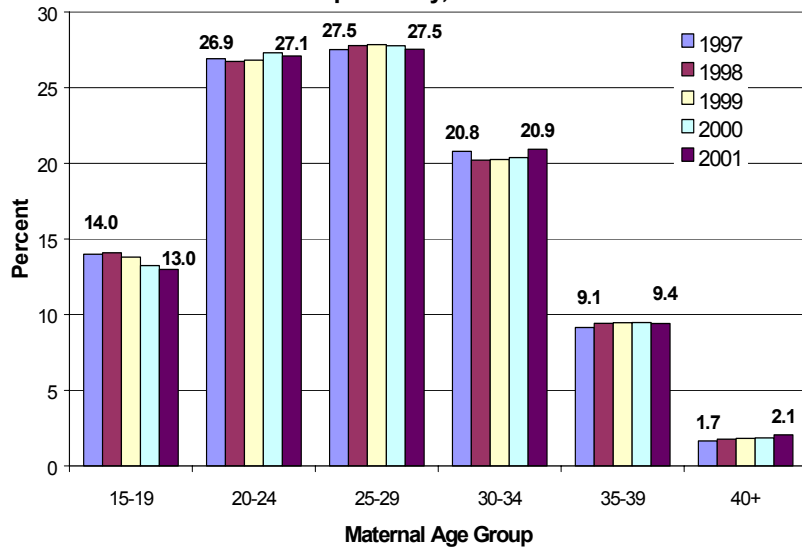
^{*}1997-1999 data are from Arizona DES population projections⁹.

[†]2000 data are from 2000 Census¹⁰.

NA = not available.

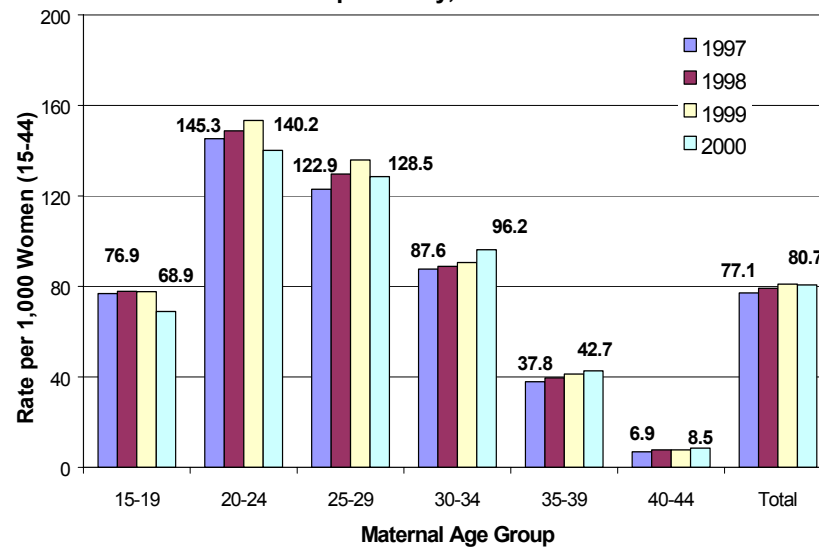
Over 50% of the births to Maricopa County residents were to women age 20 to 29. The mother's age at the time she delivers (maternal age) affects pregnancy risk, such that older and younger mothers have higher risk of negative pregnancy outcomes than mothers in their twenties. Thirteen percent of the births were to females under the age of 20, while 2.1% of the births were to women over the age of 40. Figure 8 shows the distribution of births by maternal age for each year from 1997 to 2001.

Figure 8. Percent Distribution of Births by Maternal Age Group in Maricopa County, AZ 1997-2001



During 2000, the highest birth rates were to women aged 20 to 24 (140.2 per 1,000 women) and 25 to 29 (128.5 per 1,000 women). From 1997 to 2000, the birth rates slightly decreased for women in the age groups under 25 years and slightly increased for women 25 years of age and older. Figure 9 shows birth rates by age groups and year. Population estimates for the year 2001 were not available; therefore, no birth rates are available for 2001.

Figure 9. Birth Rate by Maternal Age Group and Year, Maricopa County, AZ 1997-2000



Racial and ethnic group membership may affect pregnancy risk because it is often a proxy variable for socioeconomic status and living conditions as well as some cultural and behavioral patterns. Of the births in Maricopa County during 2001, 47.4% were to White, Non-Hispanic mothers and 43.0% were to Hispanic mothers of all races (see Figure 10). Although the absolute number of births increased within every race/ethnicity category, the percent distribution has changed. The percentage of white births decreased from 53.7% of births in 1997 to 47.4% of births in 2001, the percentage of Hispanic births increased from 37.0% to 43.0%. The percentages of births for Non-Hispanic African Americans, Native Americans, and Asians changed little from 1997 to 2001. Section X examines key indicators by race/ethnicity from 1997 to 2001.

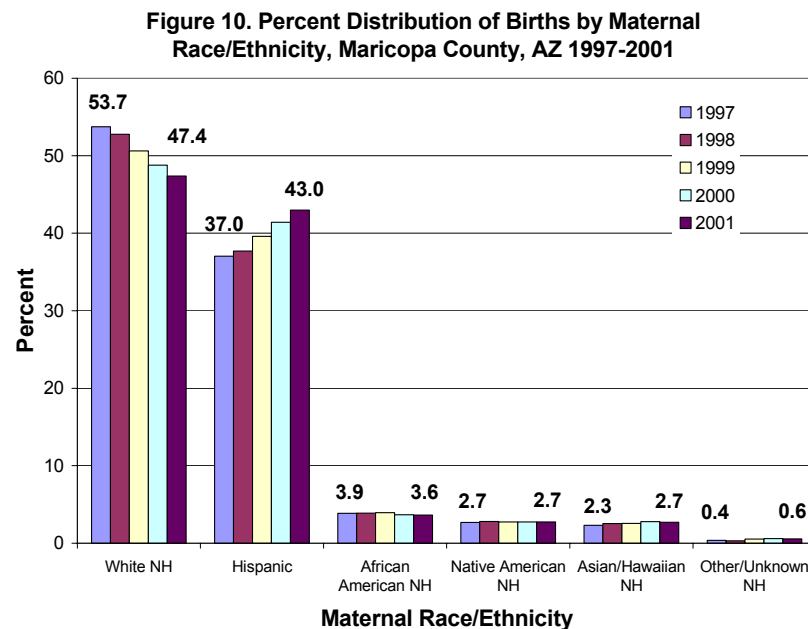
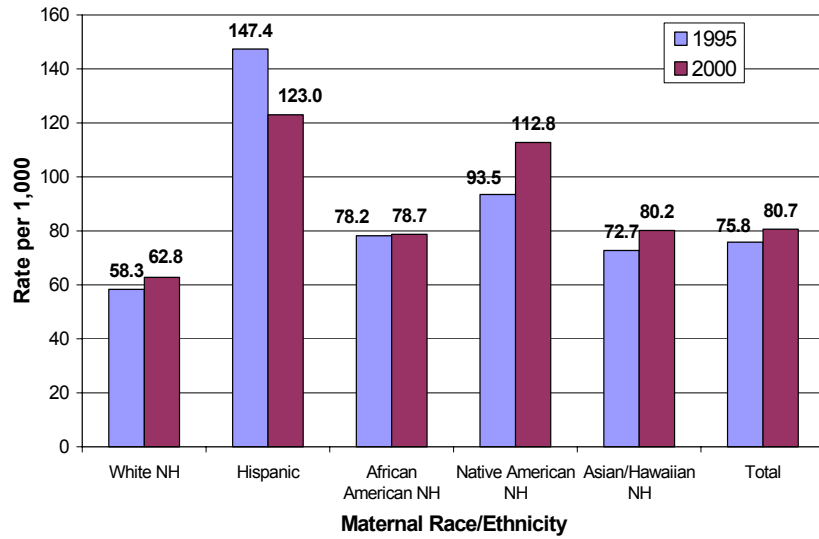
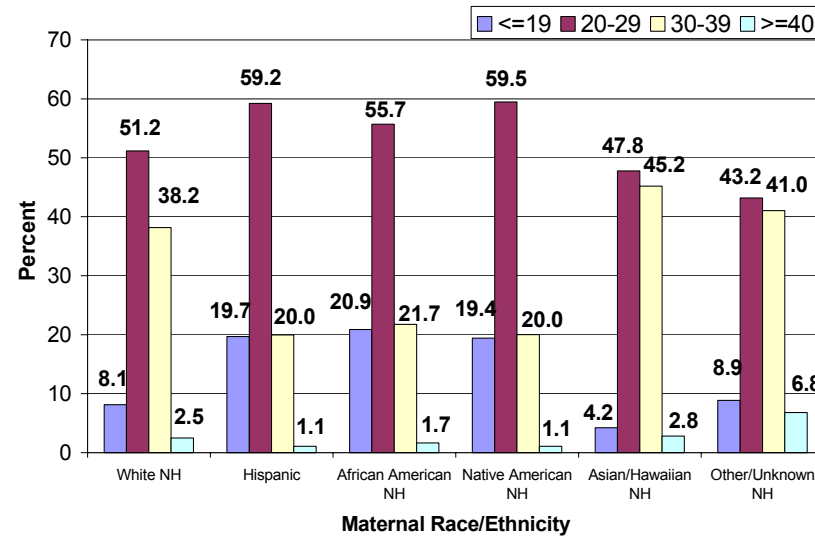


Figure 11. Birth Rate by Maternal Race/Ethnicity, Maricopa County, AZ 1995 & 2000



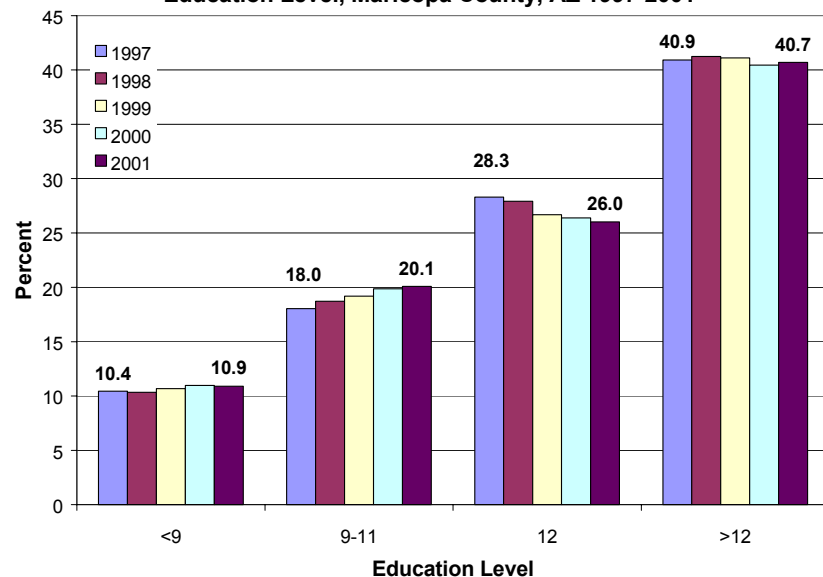
Although Hispanic women gave birth at almost twice the rate of White women, their birth rate has decreased from 147.4 to 123.0 births since 1995. See Figure 11 for birth rates by maternal race/ethnicity.

Figure 12. Percent Distribution of Births by Maternal Age and Race/Ethnicity, Maricopa County, AZ 1998-2001 Average



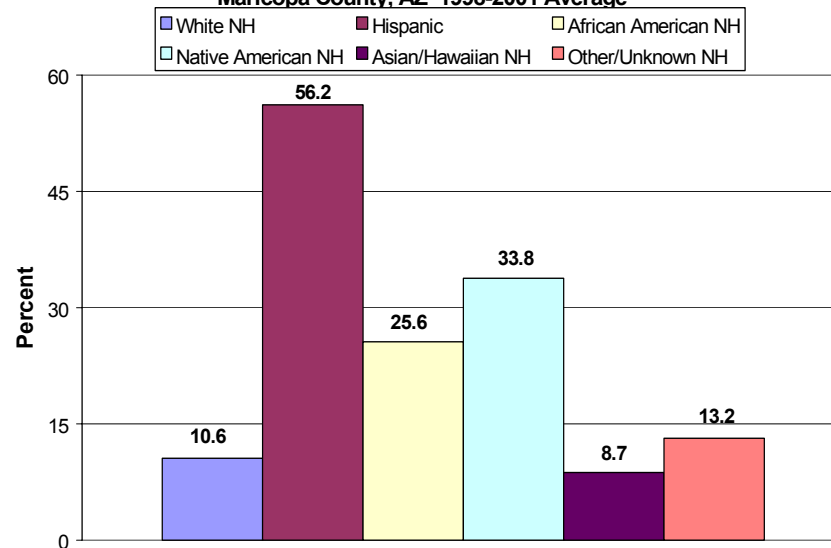
The percent of Hispanic, African American, and Native American women giving birth in the younger age groups (less than 29 years old) was higher than the equivalent percent among White and Asian women. Figure 12 shows the percent distribution of births by maternal age and race/ethnicity.

Figure 13. Percent Distribution of Births by Maternal Education Level, Maricopa County, AZ 1997-2001



Educational attainment may affect pregnancy risk because it is related to behavioral patterns, income levels, and access to care. Although the absolute number of women giving birth in almost all education categories increased, the percent distribution by education level changed somewhat. The percent of women giving birth who had less than a twelfth grade education slightly increased from 1997 to 2001, from 28.4% to 31.0%, while the percentage giving birth with a twelfth grade education or more slightly decreased (see Figure 13).

Figure 14. Percent of Women within Each Race/Ethnicity Giving Birth with Less than a Twelfth Grade Education, Maricopa County, AZ 1998-2001 Average



More than half of the Hispanic women (56.2%) giving birth during the years 1998 through 2001 did not have a twelfth grade education, accounting for 75% of the births to women of all races/ethnicities with less than a high school education. One third of Native American women (33.8%), one fourth of African American women (25.6%), 10.6% of White women, and 8.7% of Asian women had not completed high school when they gave birth (see Figure 14).

The percentage of births paid for by the Arizona Health Care Cost Containment System (AHCCCS) increased slightly from a low of 39.7% in 1999 to 43.9% in 2001 (see Figure 15). The percentage of births without recorded insurance coverage, paid for by the individual herself, decreased slightly from 4.0 in 1997 to 2.3% in 2001.

While 57% of the births paid for by AHCCCS were to women with less than 12 years of education, only 9% of births paid for by private insurance were to women with less than 12 years of education (see Figure 16).

Figure 15. Percent Distribution of Births by Source of Payment for Delivery, Maricopa County, AZ 1997-2001

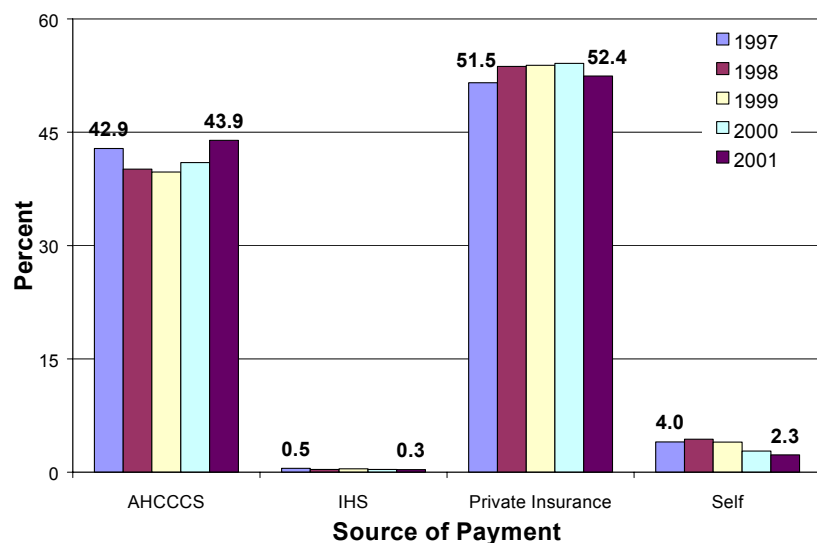


Figure 16. Percent Distribution of Births by Education Level within each Category of Source of Payment for Delivery, Maricopa County, AZ 2001

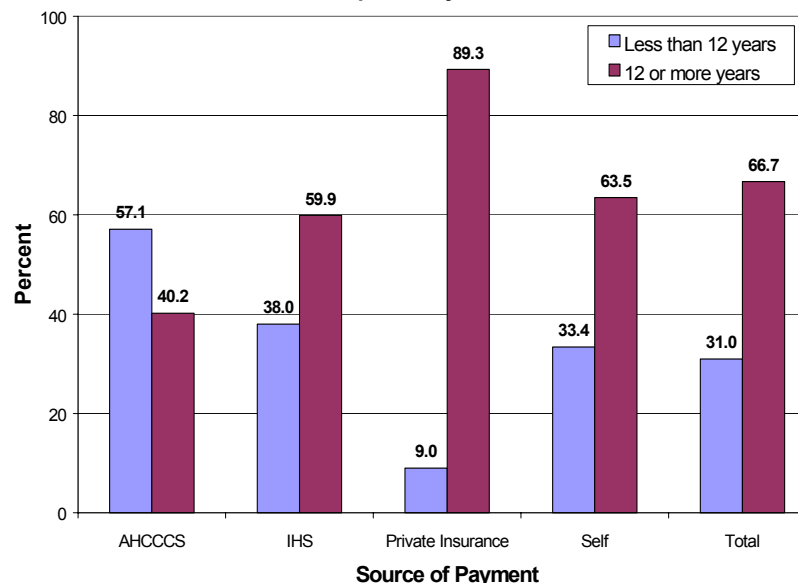
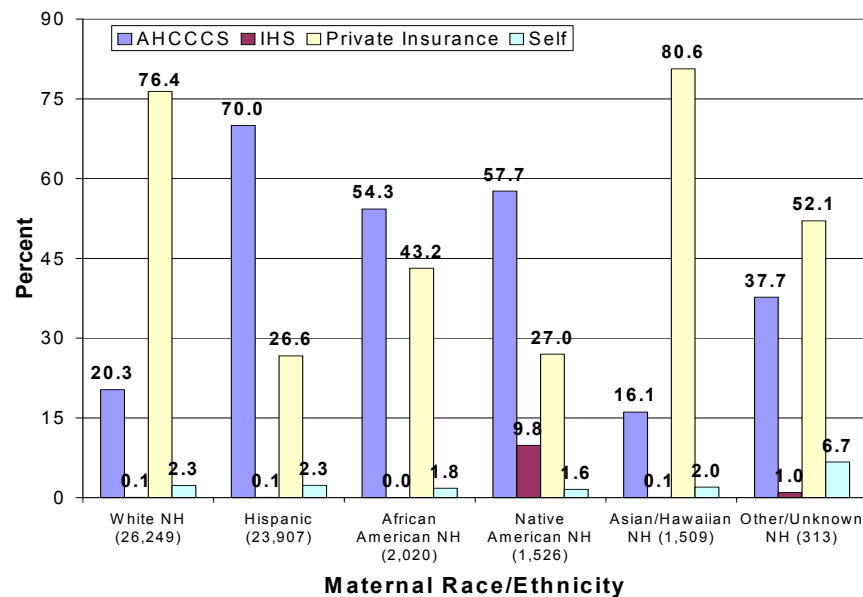


Figure 17. Percent Distribution of Births within Maternal Race/Ethnicity by Source of Payment for Delivery, Maricopa County, AZ 2001

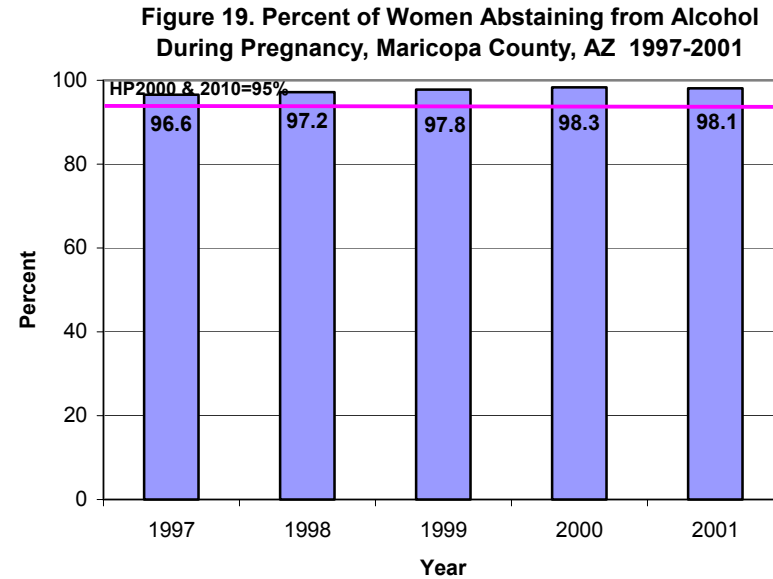
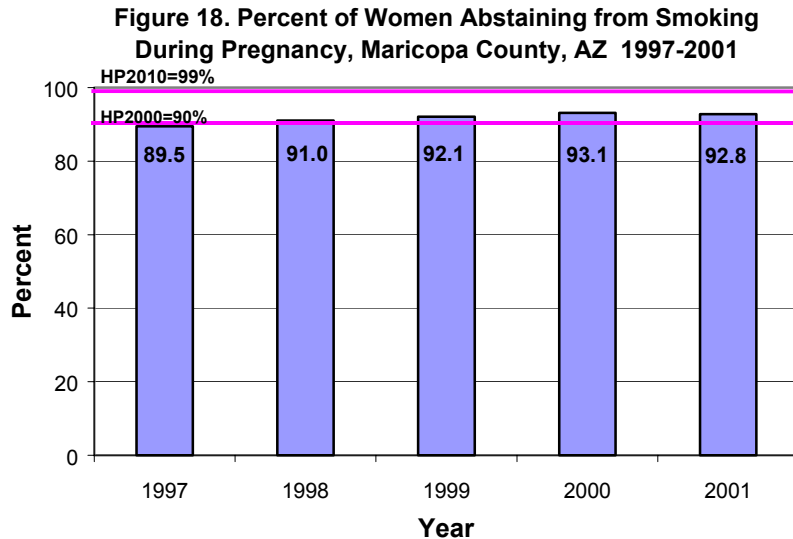


Most Asian women (80.6%) paid for their deliveries with private insurance, as did most White women (76.4%). The majority of Hispanic women (70%) paid for their delivery with AHCCCS as did a little over half of the African American (54.3%) and Native American (57.7%) women. Figure 17 shows the percent distribution of births by race/ethnicity and source of payment.

SECTION IV. SUBSTANCE USE

The percentage of mothers abstaining from cigarette and alcohol use during pregnancy has steadily increased from 1997 to 2001.

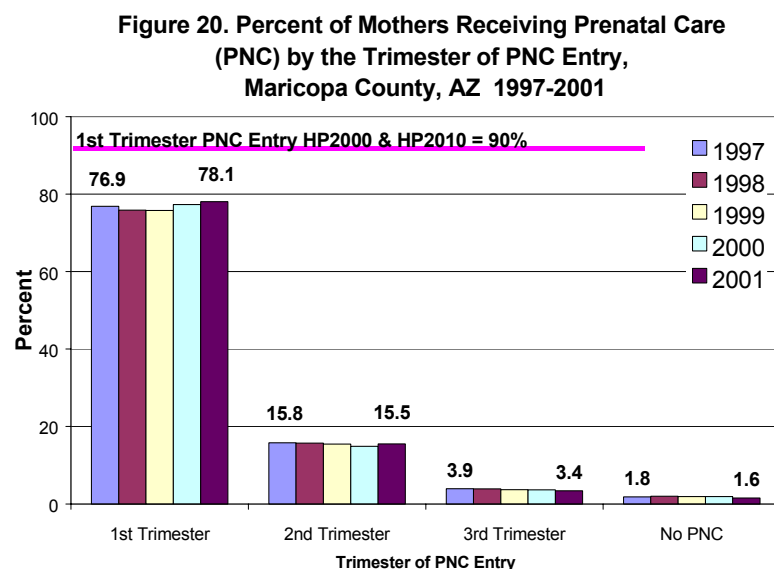
During 2001, 92.8% of Maricopa County mothers reported abstaining from cigarette use during their pregnancy (see Figure 18). We examined abstinence from cigarettes by education level and there was no difference. Maricopa County reached the Healthy People 2000 goal of 90% abstinence. The 2010 goal is 99% abstinence from cigarettes.



The Healthy People 2000 and 2010 objective for alcohol use during pregnancy is 95% abstinence. Maricopa County met the objective in each year from 1997 to 2001, with 98% of mothers reporting alcohol abstinence (Figure 19). During 2001, 98.1% of mothers reported abstinence from alcohol during pregnancy regardless of education level.

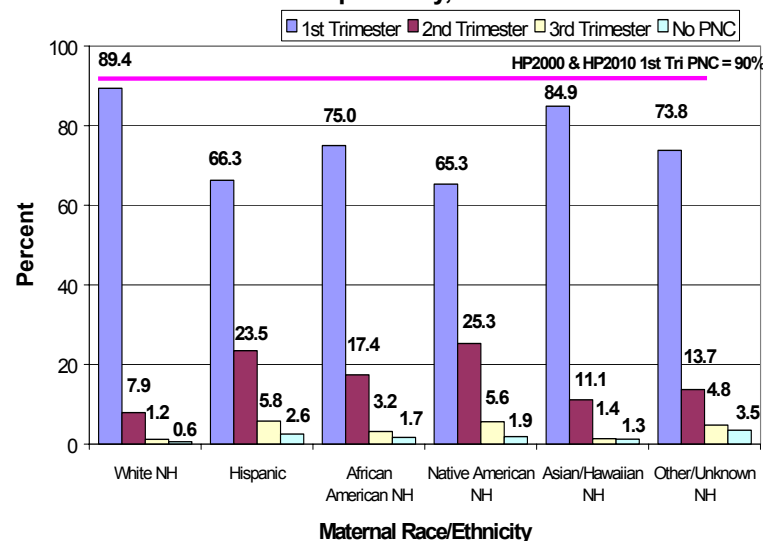
SECTION V. PRENATAL CARE

Many perinatal complications leading to death, disease, and disability can potentially be reduced by pregnancy-related health care. The Healthy People 2000 and 2010 objective is to have at least 90% of women initiating prenatal care during the first trimester of pregnancy. Maricopa County has not reached the objective; in 2001, only 78%, or 43,429, women entered prenatal care during the first trimester (Figure 20).



As shown in Figure 20, 1.6% of the Maricopa County women who gave birth during 2001 did not receive any prenatal care, which represents 864 births. An additional 1,897 women did not initiate prenatal care until their third trimester of pregnancy.

Figure 21. Percent Distribution of Mothers by Trimester of Prenatal Care Entry within Maternal Race/Ethnicity Categories, Maricopa County, AZ 2001



The percent of Non-Hispanic White women (89.4%) and Asian women (84.9%) almost reached the Healthy People objective of 90% for first trimester entry into prenatal care. Only 65.3% of Native American women and 66.3% of Hispanic women, however, received prenatal care during the first trimester. Figure 21 shows the percent of mothers who received prenatal care within each race/ethnicity by trimester of entry.

Compared with women in their thirties (85.5%), younger women were less likely to initiate prenatal care in the first trimester. Only 77.3% of women between the ages of 20 and 29 and 63.2% of women under age 20 received first trimester prenatal care (see Figure 22).

Figure 22. Percent Distribution of Mothers by Trimester of Prenatal Care Entry by Maternal Age Group, Maricopa County, AZ 2001

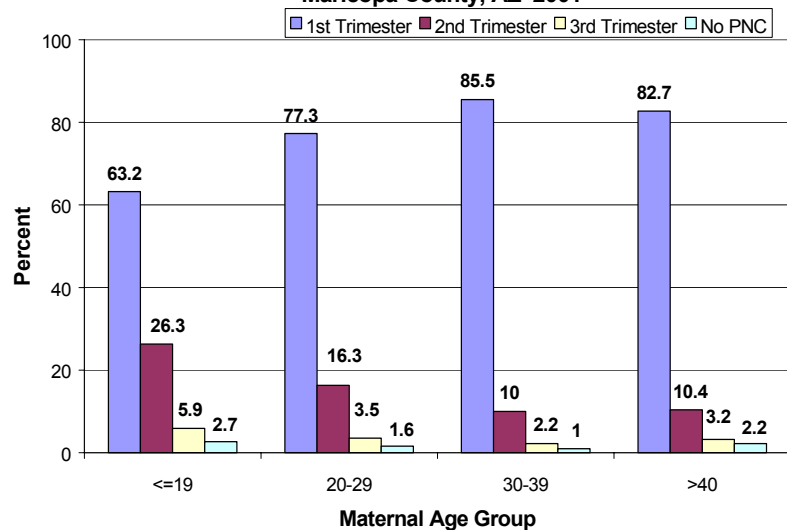
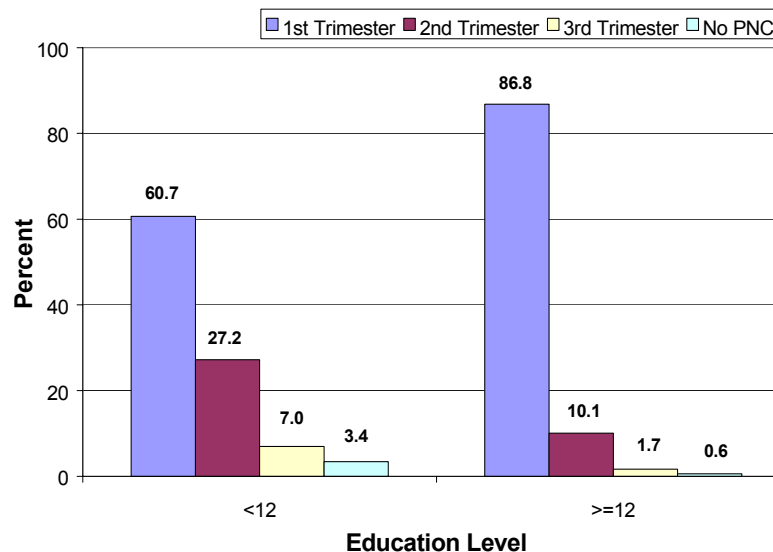
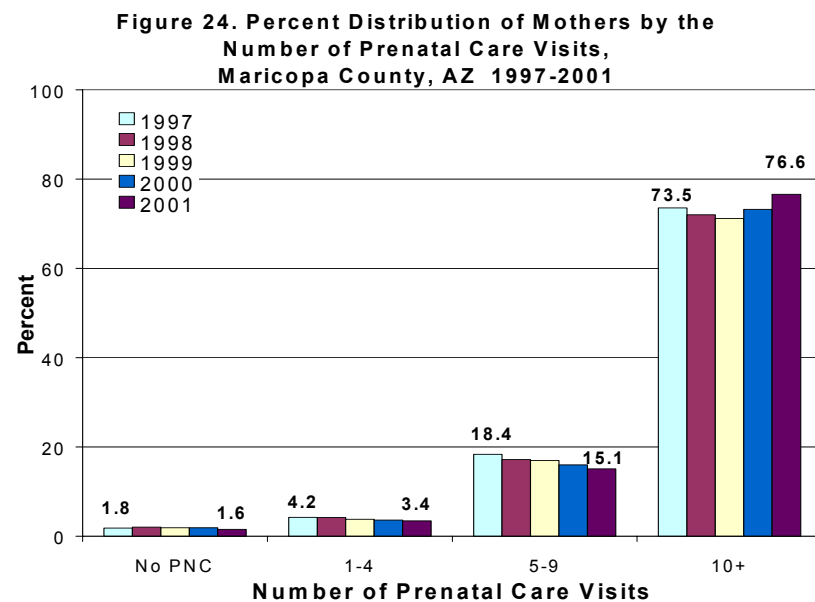


Figure 23 shows that 86.8% of Maricopa County women with at least 12 years of education initiated prenatal care in the first trimester of pregnancy, whereas only 60.7% of women with less than a twelfth grade education did.

Figure 23. Percent of Mothers by Trimester of Prenatal Care Entry by Education Level, Maricopa County, AZ 2001



The percent of women receiving four or fewer prenatal care visits decreased from 6.0% in 1997 to 5.0% in 2001. Those who had no prenatal care visits decreased from 1.8% to 1.6%. Figure 24 displays the percent distribution of mothers by the number of prenatal care visits.

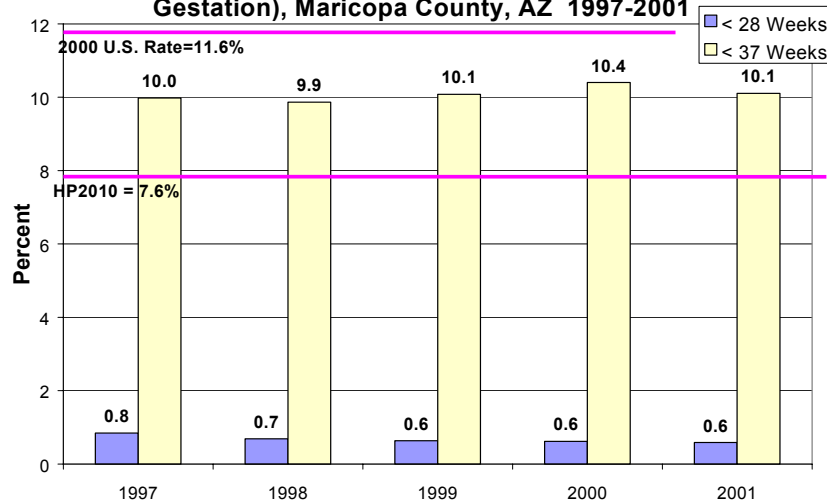


SECTION VI. PRETERM BIRTHS

Preterm birth (delivery before 37 weeks of pregnancy) is correlated with low birth weight and is a principal cause of infant morbidity and mortality. The percent of preterm births has not changed substantially in the last five years (see Figure 25). Approximately 10% of Maricopa County babies were born at less than 37 weeks gestation. The county did not reach the Healthy People 2010 preterm birth goal of less than 7.6% of births. Approximately 0.6% of births in 2001 had less than 28 weeks gestation.

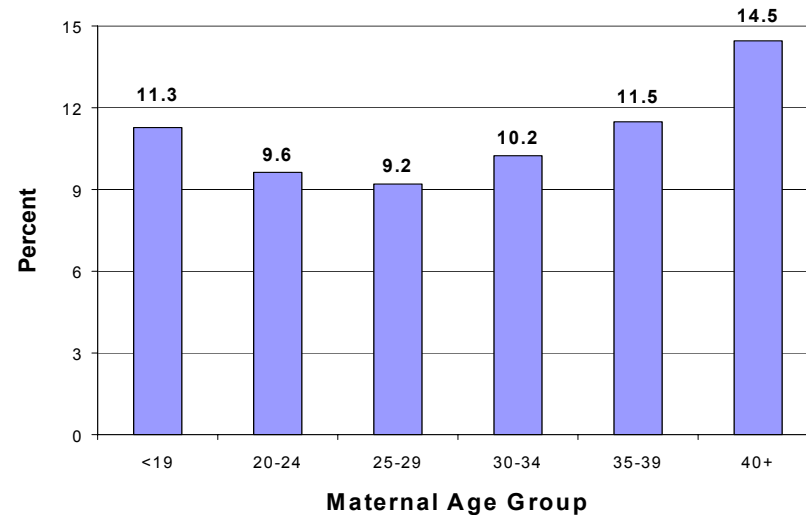
The percentage of preterm births as a function of maternal age generally follows a J-shaped curve. During the years 1998-2001, there were higher rates of preterm births for younger age groups, lower rates for women in their twenties, and higher rates as women's age increased (see Figure 26).

Figure 25. Percent of Preterm Births (<37 Weeks Gestation), Maricopa County, AZ 1997-2001



The percent of preterm births for African Americans (14.3%) was higher than for other races/ethnicities (range of 9.7% to 10.1%) during the four-year period 1998 to 2001 (14.6% in 2001). See Summary of Birth Statistics table in Volume II for more data.

Figure 26. Percent of Preterm Births (< 37 Weeks Gestation) by Maternal Age Group, Maricopa County, AZ 1998-2001



SECTION VII. LOW BIRTH WEIGHT

Low birth weight (a weight at birth of less than 2,500 grams or 5.5 lbs.) is correlated with preterm birth and is a main cause of infant mortality and morbidity. There were 3,871 low birth weight babies born in Maricopa County during 2001; of those, 624 were very low birth weight (weighing less than 1,500 grams). The percent of low birth weight (LBW) births in the county increased slightly between 1997 (6.8%) and 2001 (7.0%). In 2001, 1.1% percent of births were very low birth weight (VLBW) and 3.8% of births were high birth weight (HBW; 4,250 grams or more). Figure 27 shows birth weight categories for each year. Maricopa County has not reached the Healthy People 2000 and 2010 objectives for the percent of LBW (5.0%) or VLBW (1.0% and 0.9%, respectively) births.

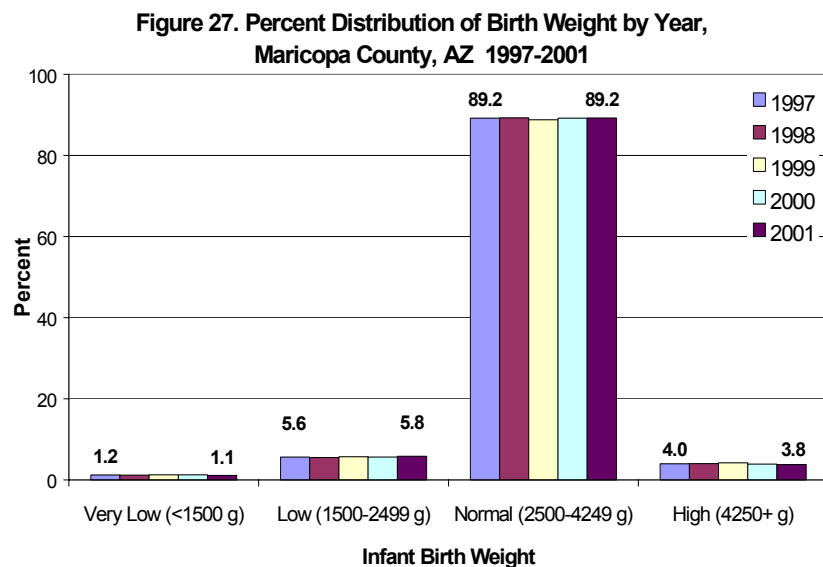


Figure 28. Percent Distribution of Low Birth Weight Births by Maternal Age Group, Maricopa County, AZ 1998-2001 Average

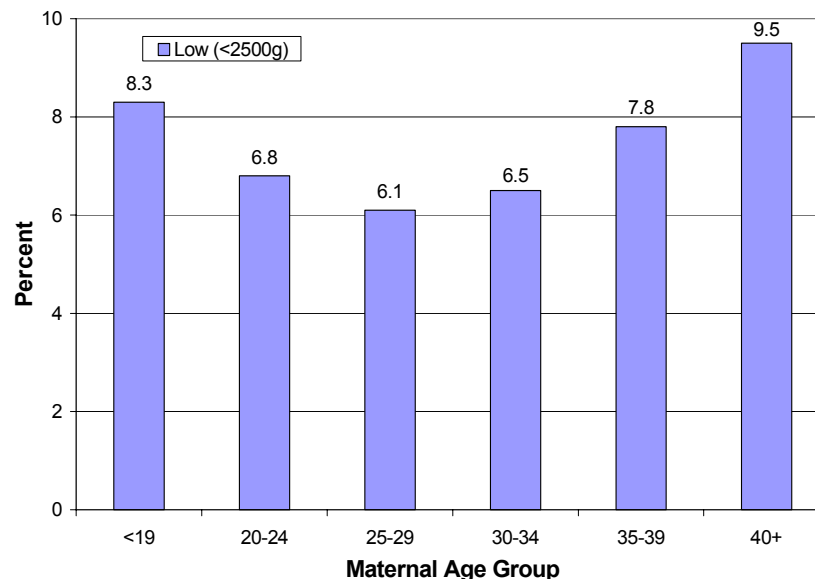
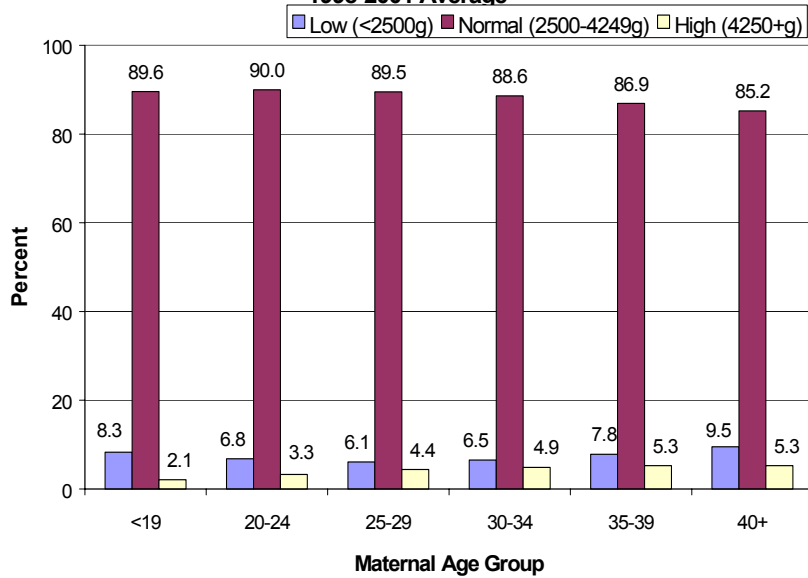


Figure 28 shows the J-shaped curve that was also observed for preterm births. There were higher percentages of LBW births for the younger and older age group categories than for women in their twenties.

**Figure 29. Percent Distribution of Births within Maternal Age Group by Infant Birth Weight, Maricopa County, AZ
1998-2001 Average**



The percent of high birth weight births increased as the age of the mother increased. Two percent of teenagers experienced a high birth weight birth, but 5.3% of women 35 years of age and over experienced a high birth weight birth (see Figure 29).

**Figure 30. Percent Distribution of Births by Infant Birth Weight within Maternal Race/Ethnicity, Maricopa County, AZ
1998-2001 Average**

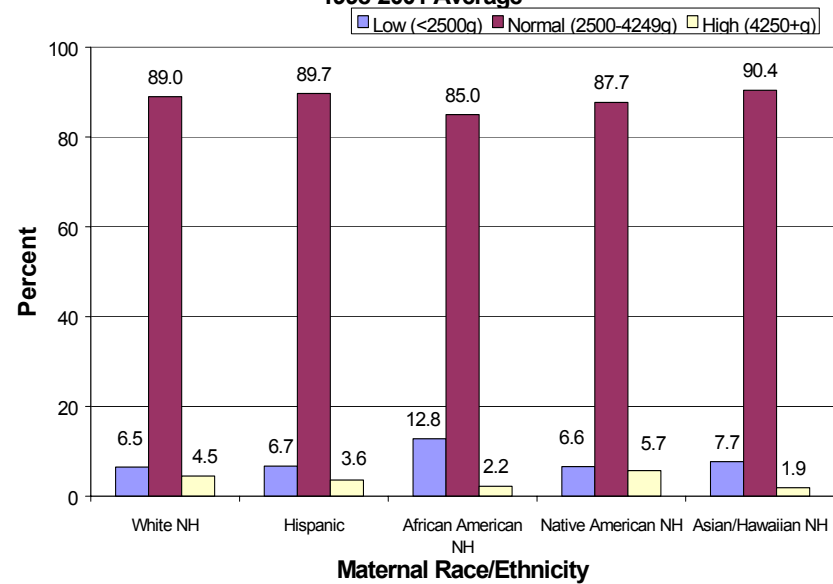
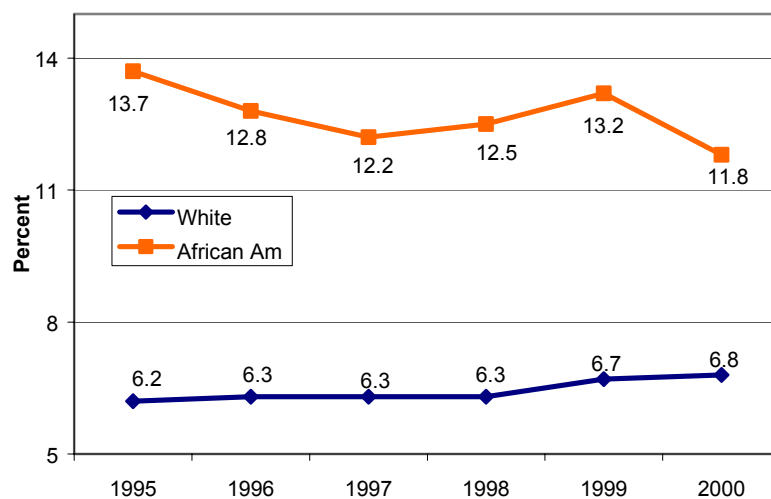


Figure 30 shows the average infant birth weight distribution by maternal race/ethnicity for the years 1998-2001. The percent of LBW births was highest for African American women (12.8%). Native American (5.7%) and White (4.5%) women had the highest percentages of high birth weight births, while African American (2.2%) women had the lowest percentage.

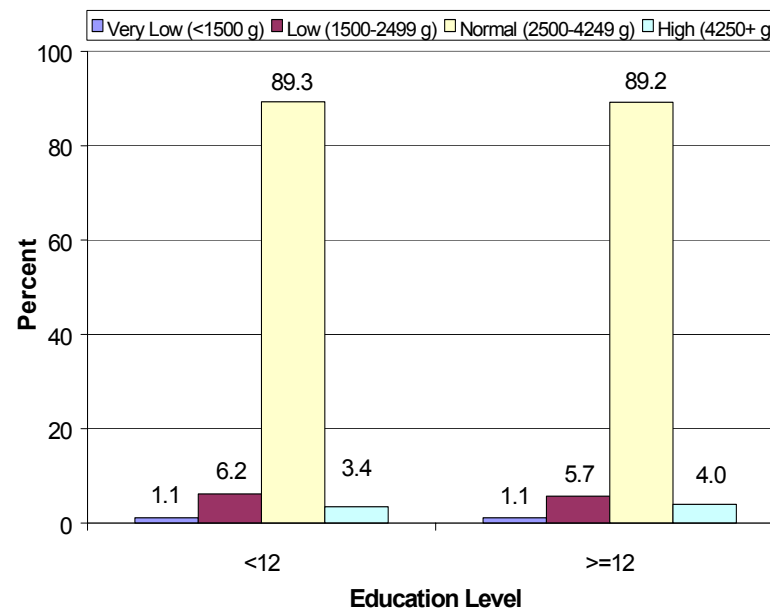
In 1995, the percent of low birth weight births for Whites was 6.2% and for African Americans it was 13.7%. In 2000, the percentage of low birth weight births for Whites increased to 6.8% and African Americans decreased to 11.8%. The graph below (Figure 31) shows the differences that exist between African Americans and Whites in low birth weight births.

Figure 31. Low Birth Weight (<2500g) by Maternal Race/Ethnicity (African American and White), Maricopa County, AZ 1995-2000



Mothers with less than twelve years of education had a slightly higher rate of LBW babies and a lower rate of HBW babies than mothers with twelve or more years of education. Figure 32 shows the birth weight distribution by maternal education level.

Figure 32. Percent of Births by Birth Weight and Education Level, Maricopa County, AZ 2001



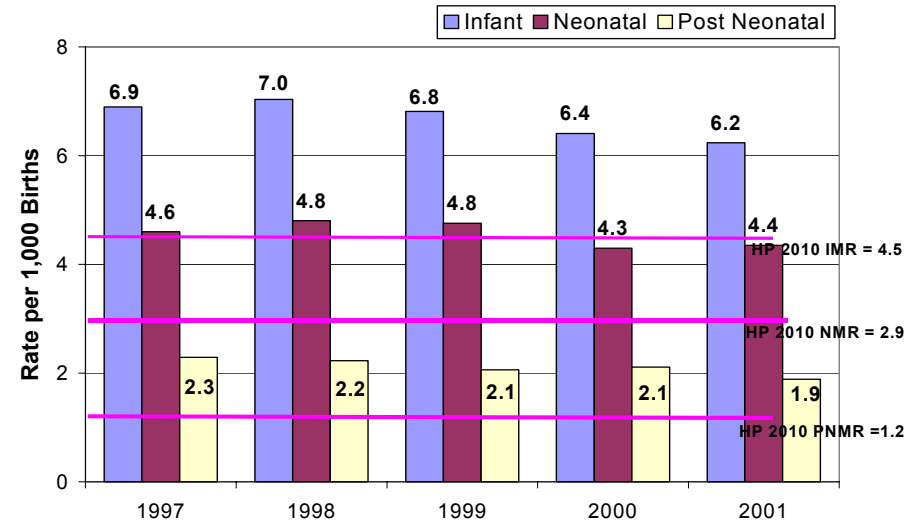
SECTION VIII. INFANT MORTALITY

In 1997, Maricopa County reached the Healthy People 2000 objective of 7.0 infant deaths per 1,000 live births. The infant mortality rate steadily decreased from 1998 to 2001 to 6.2 per 1,000 live births. If this rate of decrease is sustained (0.2 deaths per 1,000 live births) Maricopa County should reach the Healthy People 2010 goal of 4.5 infant deaths per 1,000 live births by 2010.

Maricopa County's neonatal mortality rate reached the Healthy people 2000 goal of 4.5 neonatal deaths per 1,000 live births during 2000 (4.3). The Healthy People 2010 objective is 2.9 neonatal deaths per 1,000 live births (see Figure 33).

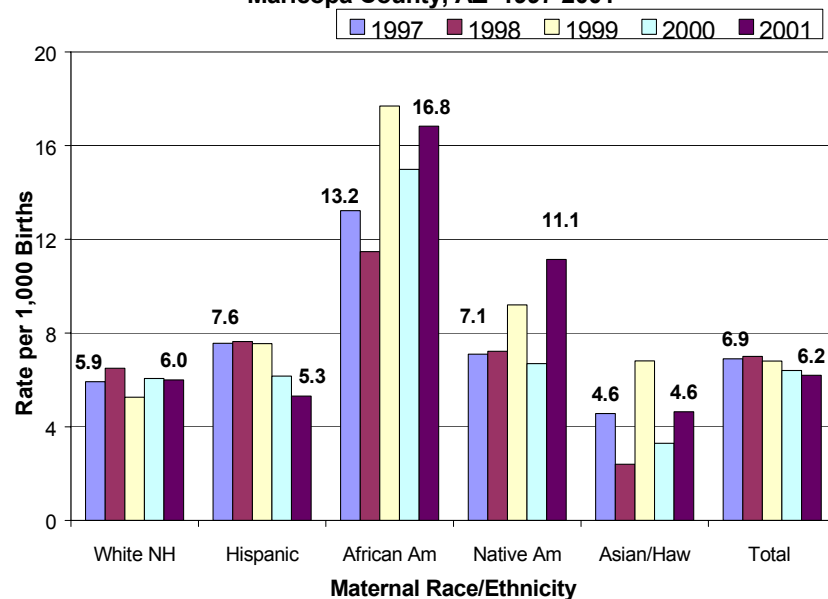
The county's post neonatal mortality rate was below the Healthy People 2000 objective of 2.5 post neonatal deaths per 1,000 live births in 1997 (2.3). The 2001 post neonatal infant mortality rate of 1.9 per 1,000 live births is approaching the 2010 objective of 1.5.

Figure 33. Infant, Neonatal, and Post-Neonatal Mortality Rates, Maricopa County, AZ 1997-2001



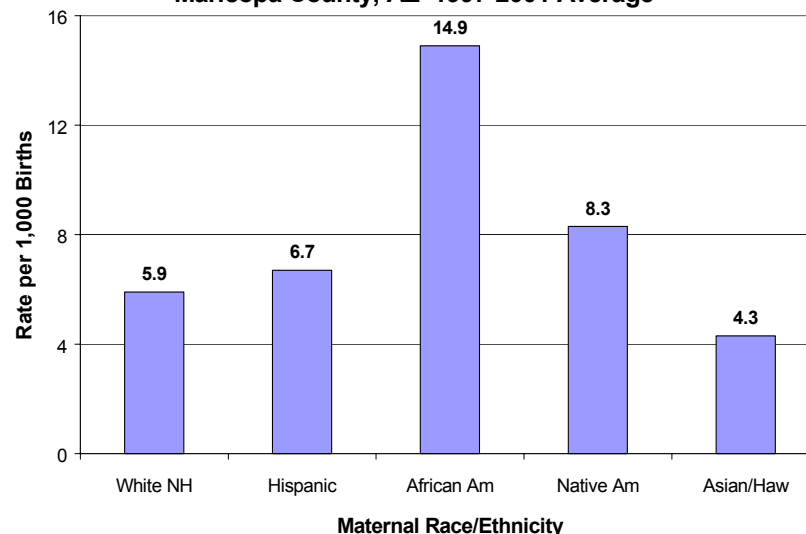
The Hispanic infant mortality rate decreased from 7.6 per 1,000 live births in 1997 to 5.3 per 1,000 live births in 2001 (see Figure 34). Note that the African American, Native American, and Asian absolute numbers of births and infant deaths are small within each year so the rates are less stable and fluctuate more. Despite the fluctuations, racial/ethnic disparities in infant mortality are evident, with African American babies experiencing more than two times the infant mortality of White babies and more than three times that of Hispanics in 2001. Native Americans had approximately twice the infant mortality of White and Hispanic babies.

Figure 34. Infant Mortality by Maternal Race/Ethnicity, Maricopa County, AZ 1997-2001



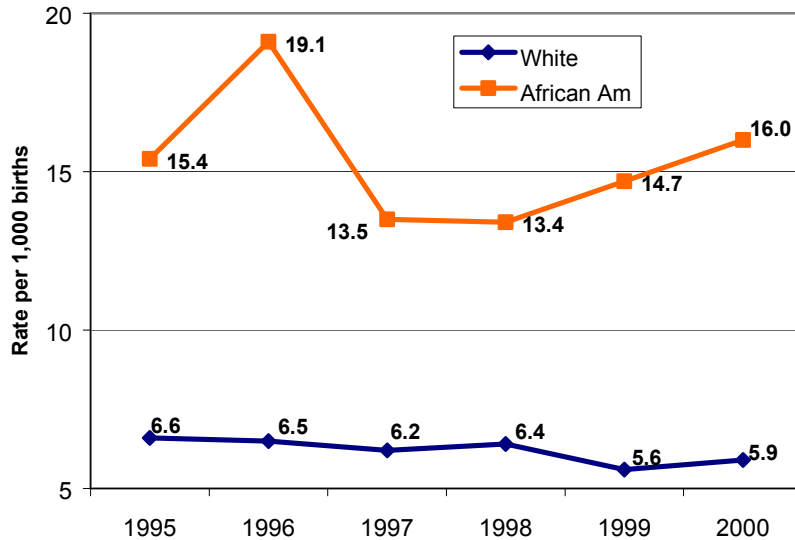
Averaged from 1997 through 2001, African Americans had the highest infant mortality rate in Maricopa County (14.9 per 1,000 live births), followed by Native Americans (8.3), Hispanics (6.7), Whites (5.9), and Asians (4.3). See Figure 35.

Figure 35. Infant Mortality by Maternal Race/Ethnicity, Maricopa County, AZ 1997-2001 Average



In 1995, the infant mortality rate (IMR) for Whites was 6.6 and for African Americans it was 15.4. In 2000, the IMR for Whites was 5.9 and for African Americans it was 16.0. The graph below reflects infant mortality rates for unlinked data which differs somewhat from linked data. The graph demonstrates that the gap between Whites and African Americans in infant mortality rates persists (see Figure 36).

Figure 36. Infant Mortality* (<1 year old) by Maternal Race/Ethnicity (African American and White) Maricopa County, AZ 1995-2000



*Deaths per 1,000 births. Unlinked data.

African Americans had the highest percentage of low birth weight births (see Section VII) and the highest infant mortality rate. Birth weight is associated with infant mortality. For the period 1997-2001, normal birth weight babies had an infant mortality rate of 2.5 per 1,000 live births but the low birth weight infant mortality was 19.7 and the very low birth weight infant mortality was 264.7. Very high birth weight babies also had a higher infant mortality rate of 3.2 infant deaths per 1,000 live births. Figure 37 shows infant mortality by birth weight.

Figure 37. Infant Mortality Rate for Very Low (VLBW), Low (LBW), Normal (NBW), and High Birth Weight (HBW) Births, Maricopa County, AZ 1997-2001

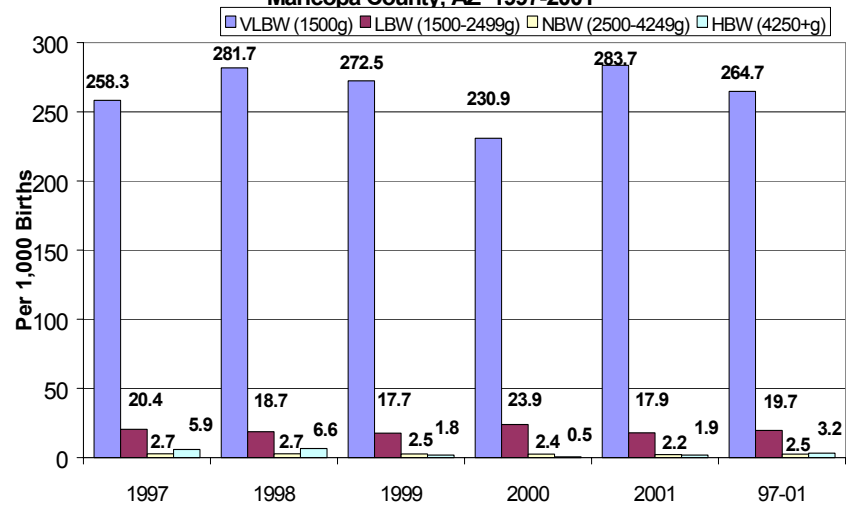


Figure 38. Infant Mortality Rate by Maternal Age Group, Maricopa County, AZ 1997-2001

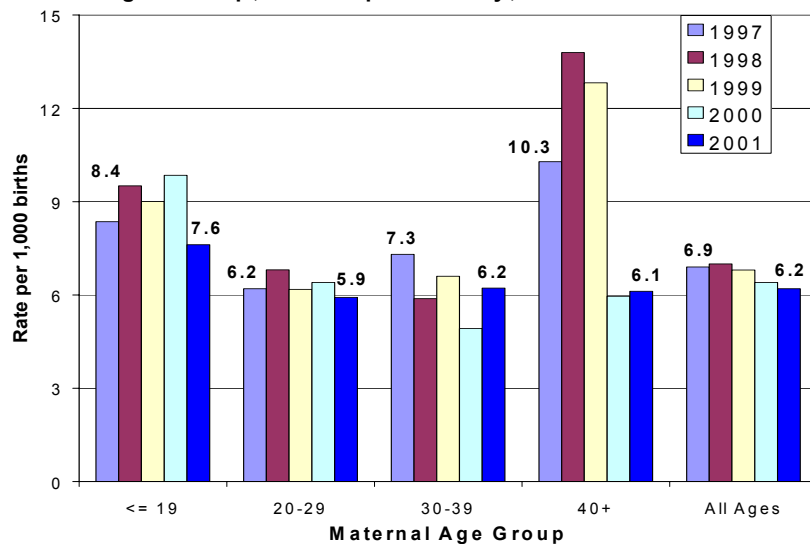
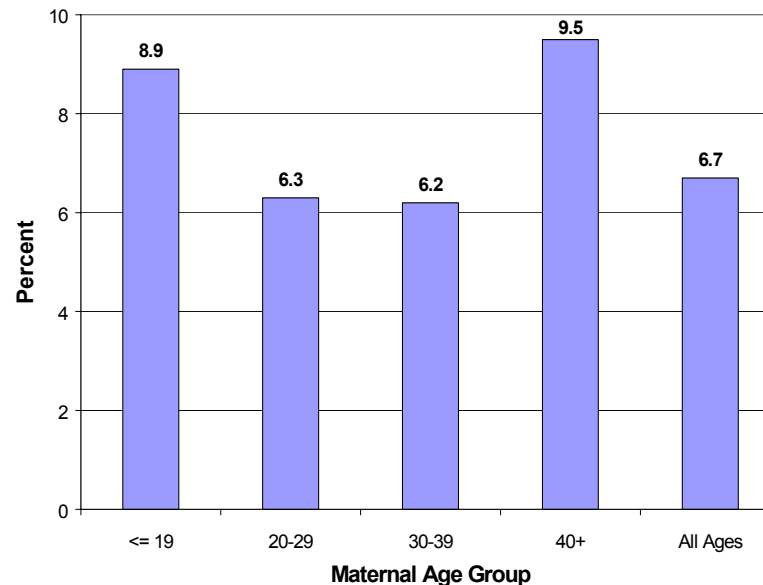


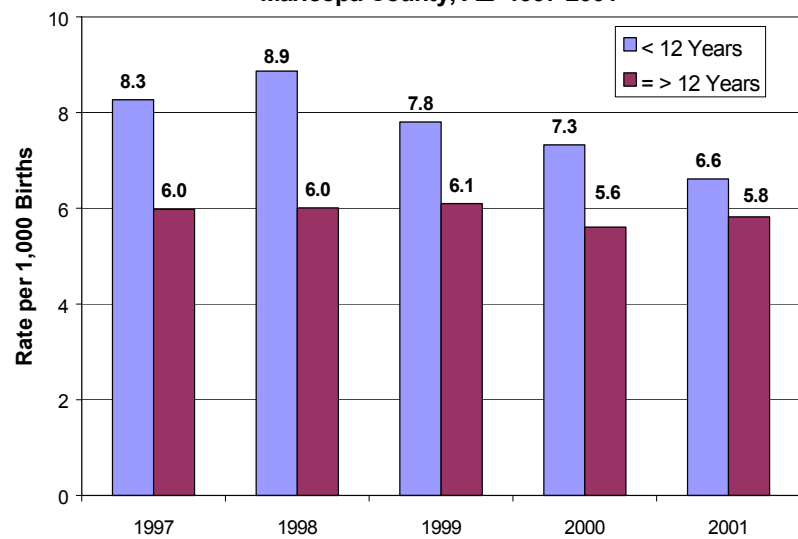
Figure 38 shows the infant mortality rate by maternal age group from 1997 to 2001. The infant mortality for the younger (≤ 19 year olds) and older (40 and older) age groups is higher than that of women in their twenties. This pattern is seen more clearly in the next figure.

Figure 39. Infant Mortality Rate by Maternal Age Group, Maricopa County, AZ 1997-2001



The infant mortality rate by maternal age group shows a J-shaped curve pattern previously observed in preterm and low birth weight births (Figures 26 and 28, respectively). There were higher rates of infant mortality for the younger and older maternal age group categories than for women in their twenties (see Figure 39).

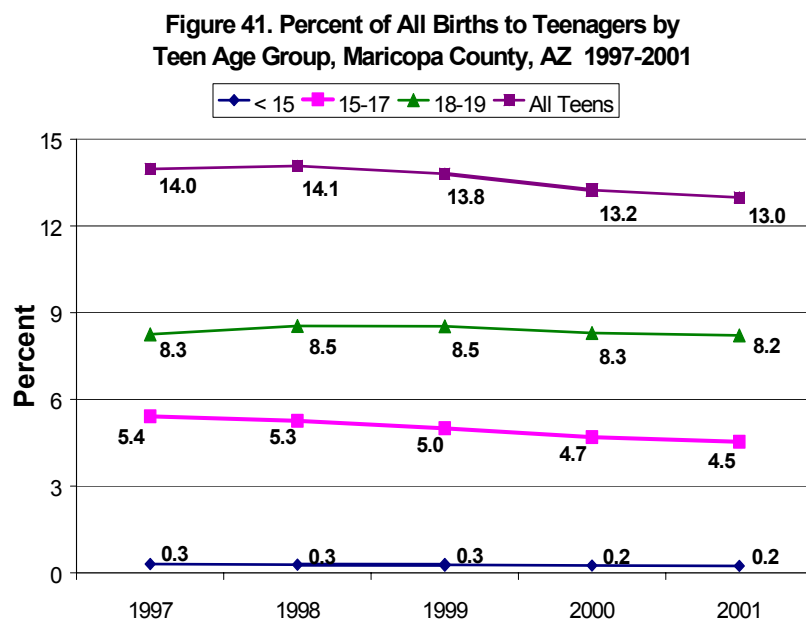
**Figure 40. Infant Mortality Rate by Maternal Education Level,
Maricopa County, AZ 1997-2001**



Women with less than twelve years of education had a higher infant mortality rate each year, 1997 through 2001, than women with twelve or more years of education (see Figure 40). The gap in infant mortality between the higher and lower levels of education appears to be closing. In 1997, the difference in the infant mortality rate between women with and without twelve years of education was 2.3 infant deaths per 1,000 live births. In 2001, the difference was only 0.8. This may be explained by the shift in the distribution towards higher grades (9th to 11th) of women with <12 years of education (see Figure 13).

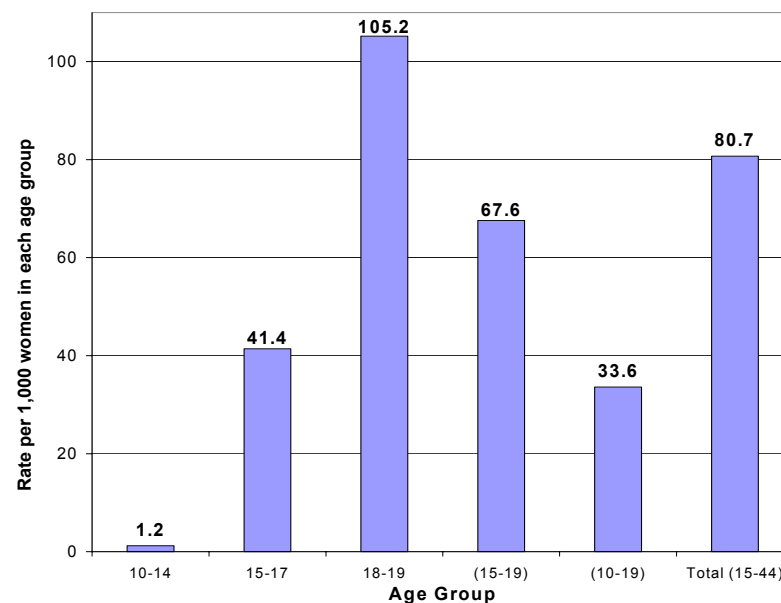
SECTION IX. TEEN PREGNANCY

In 1997, teenage pregnancies (under 20 years of age) accounted for 14% of all births in Maricopa County. This percent has decreased slightly, and by 2001, 13% of all births in the county were to teenagers (see Figure 41). Although the percent of births to teens under the age of 15 and ages 18 to 19 decreased only slightly, births to teens aged 15 to 17 decreased from 5.4% to 4.5%.

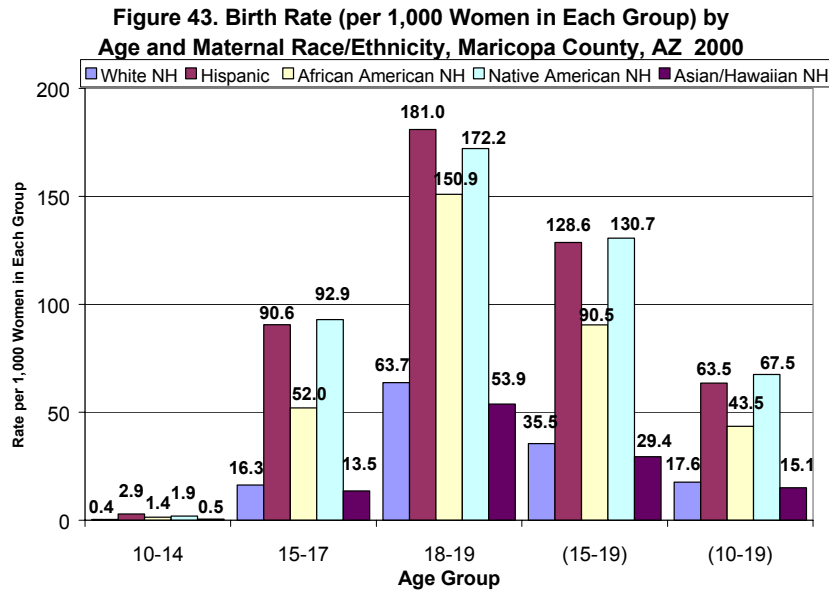


In Maricopa County during 2000, 33.6 out of every 1,000 teenage females (age 10 to 19 years) gave birth. The birth rate was 105.2 per 1,000 females 18 to 19 years of age, 41.4 per 1,000 females 15 to 17 years of age, and 1.2 per 1,000 females 10 to 14 years of age (see Figure 42).

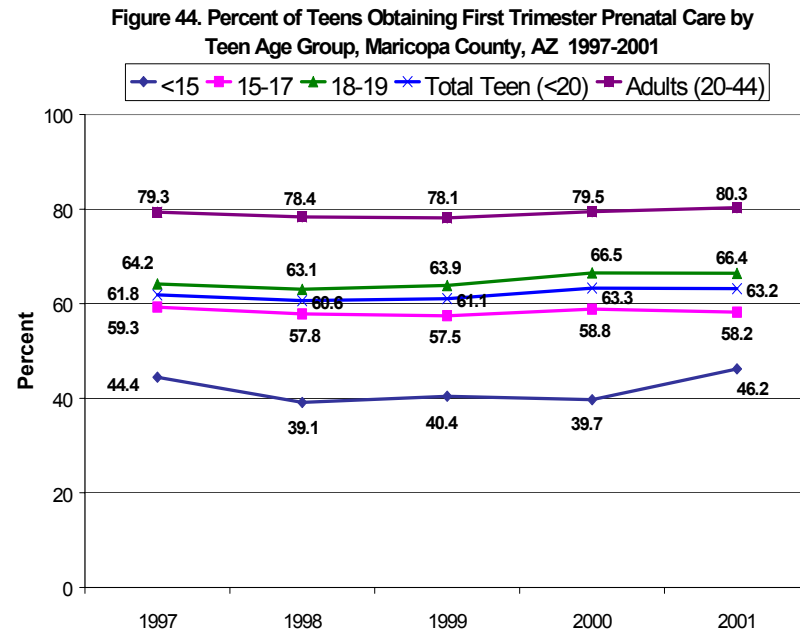
Figure 42. Birth Rate (per 1,000 women in each age group) by Age Group, Maricopa County, AZ 2000



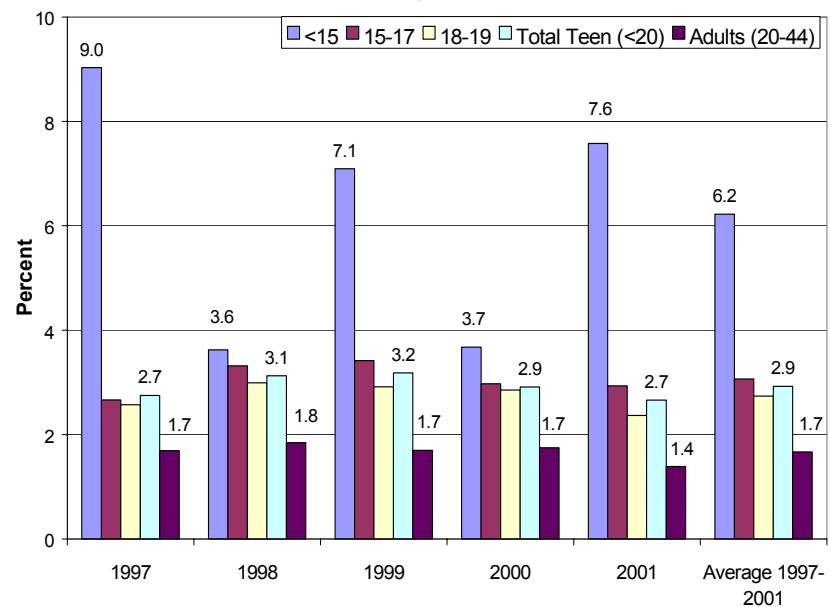
For the year 2000, the Asian/Hawaiian teen birth rate was the lowest at 15.1, Native Americans aged 10-19 years old had the highest teen birth rate, followed by Hispanics. However, the actual number of births to Native Americans teens was lower (286) than that of Hispanics (4,313). See Figure 43.



The percent of teens obtaining prenatal care during their first trimester of pregnancy is represented in Figure 44. Teens in the youngest age group, under 15 years, showed the most remarkable increase in first trimester prenatal care received, averaging 39.7% over the past few years to 46.2% in 2001. Despite this increase, this age group still maintains the lowest level of first trimester prenatal care received. The total percent of teens obtaining first trimester prenatal care is also much lower than the total percent of adults obtaining similar care, 63.2% and 80.3%, respectively.



**Figure 45. Percent of Teen Births with No Prenatal Care,
Maricopa County, AZ 1997-2001**



As shown in Figure 45, teens in the youngest age group, less than 15 years, had the highest percentage of mothers not receiving prenatal care. The percent of all teens with no prenatal care is consistently higher than that of adults, averaging 2.9% and 1.7%, respectively, for 1997-2001.

SECTION X.

KEY INDICATORS BY RACE/ETHNICITY

Table 3 provides summary data of key indicators by race/ethnicity for each year, 1997-2001. The key indicators include: 1) percent of women of child-bearing age, 2) birth rate, 3) percent of all births, 4) infant mortality rate, 5) percent with no prenatal care, 6) percent multiple births, and 7) percent low birth weight births.

Notable points:

For Native Americans from 2000 to 2001, the infant mortality rate rose from 6.7 to 11.1. Although important, this difference was not statistically significant ($\chi^2=1.22$, $p<0.27$), due to the small number of Native American births.

The percent of all births to White mothers has decreased over the years from 53.7% in 1997 to 47.4% in 2001 although they remain the largest single group among all race/ethnicities. Hispanic women still comprise the second largest group of mothers by race/ethnicity groups. Unlike the decrease seen in the percent of White births, the proportion of Hispanic births continues to rise.

African Americans consistently have the highest percent of low birth weight births, ranging from 12.3% to 14.0% compared to a range between 5.9% to 7.6% for all other race/ethnicities over the same period.

Asian women remained fairly consistent over the past five years in the key indicator categories. The exceptions to this included low birth weight births and infant mortality. There was a decrease in the percentage of low birth weight births from 7.6% in 2000 to 6.7% in 2001. The infant mortality rate for Asian women fluctuated from a low of 2.4 to a high of 6.8. In 2001, their IMR increased to 4.6.

Hispanic women were more likely not to have received prenatal care than other groups, although the percentage without care decreased steadily.

Whites and African Americans had the highest percentage of multiple births than all other race/ethnicity categories. While the percentage of multiple births for Whites has remained relatively stable over the past few years, the percentage of multiple births for African Americans has been rising.

Table 3. Key Indicators by Race/Ethnicity, Maricopa County, AZ 1997 - 2001

2001 Race/Ethnicity	Key Indicators					
	Birth rate	% Births [†]	IMR [‡]	No PNC [§]	% Multiple Births	% Low Birth Weight
White NH	Not available	47.4	6.0	0.6	3.6	6.6
Hispanic	Not available	43.0	5.3	2.6	2.1	6.7
African American, NH	Not available	3.6	16.8	1.7	4.7	14.0
Native American, NH	Not available	2.7	11.1	1.9	1.4	7.0
Asian/Hawaiian, NH	Not available	2.7	4.6	1.3	2.1	6.7
Other/Unknown, NH	Not available	0.6	12.8	3.5	3.5	11.2
Total	Not available	100.0	6.2	11.5	2.9	6.9
2000 Race/Ethnicity*						
White NH	62.8	48.8	6.1	0.6	3.6	6.8
Hispanic	123.0	41.4	6.2	3.4	1.9	6.5
African American, NH	78.7	3.7	15.0	2.5	3.3	12.3
Native American, NH	112.8	2.7	6.7	2.5	2.3	6.0
Asian/Hawaiian, NH	80.2	2.8	3.3	0.7	2.3	7.6
Other/Unknown, NH	29.7	0.6	12.2	4.3	2.7	6.7
Total	80.7	100.0	6.4	14.0	2.8	6.9
1999 Race/Ethnicity						
White NH	60.7	50.6	5.3	0.7	3.2	6.6
Hispanic	162.9	39.6	7.6	3.5	2.1	6.9
African American, NH	66.1	4.0	17.7	2.2	3.2	12.5
Native American, NH	94.2	2.7	9.2	1.4	1.7	6.9
Asian/Hawaiian, NH	72.3	2.6	6.8	1.1	3.0	7.6
Other/Unknown, NH	--	0.5	7.3	2.5	2.9	8.7
Total	813	100.0	6.8	11.4	2.7	7.0
1998 Race/Ethnicity						
White NH	60.9	52.8	6.5	0.8	3.1	6.3
Hispanic	154.4	37.7	7.6	3.8	2.0	6.6
African American, NH	64.5	3.9	11.5	2.6	3.2	12.5
Native American, NH	86.8	2.8	7.2	1.6	1.4	6.4
Asian/Hawaiian, NH	71.3	2.5	2.4	0.7	2.9	7.5
Other/Unknown, NH	--	0.3	6.5	3.2	2.6	7.7
Total	79.5	100.0	7.0	12.7	2.6	6.7
1997 Race/Ethnicity						
White NH	59.8	53.7	5.9	0.8	3.0	6.4
Hispanic	150.9	37.0	7.6	3.3	2.0	6.7
African American, NH	63.9	3.9	13.2	3.5	3.1	13.6
Native American, NH	82.1	2.7	7.1	1.9	2.4	5.9
Asian/Hawaiian, NH	64.5	2.3	4.6	0.7	2.5	7.4
Other/Unknown, NH	--	0.4	28.6	5.1	0.6	5.7
Total	77.5	100.0	6.9	15.3	2.6	6.8

Based on Census 2000 data. [†]% Births=Percent of all births. [‡]IMR=Infant Mortality Rate (deaths per 1,000 live births). [§]PNC=Prenatal Care.

SECTION XI. MISCELLANEOUS

A. MULTIPLE BIRTHS

As shown in Figure 46, women 40 years of age and older have a consistently higher percentage of multiple births than all other age groups from 1997 to 2001. The higher percentage of multiple births may be partially due to the greater proportion of women treated for infertility in this age group, as has been previously shown for other populations.

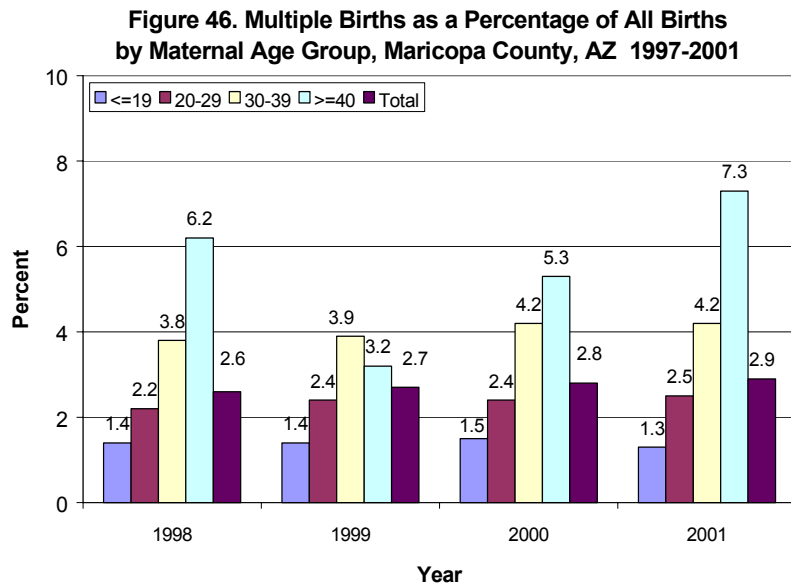
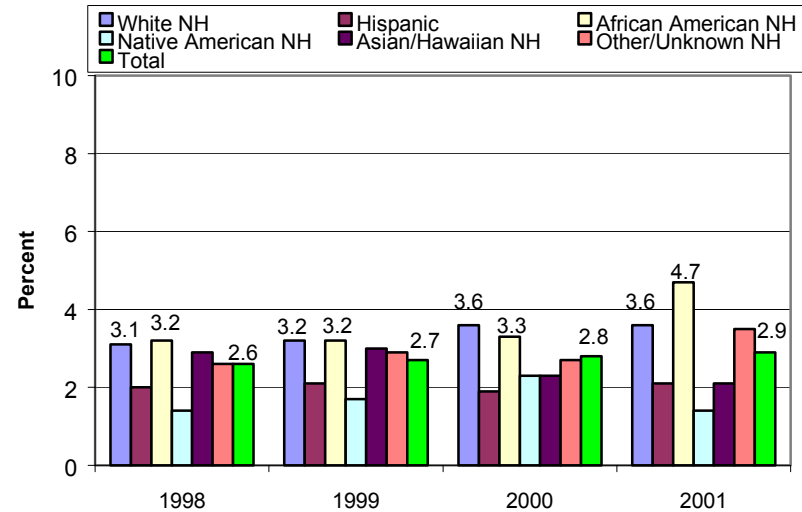


Figure 47. Multiple Births as a Percentage of All Births by Maternal Race/Ethnicity, Maricopa County, AZ 1997-2001

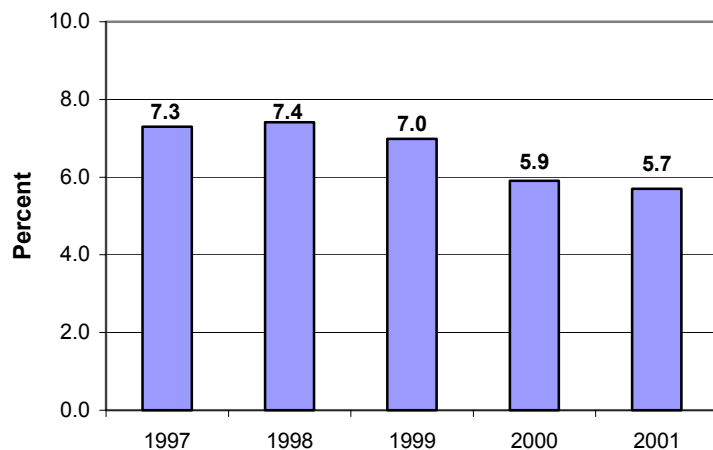


The percentage of multiple births for African American women increased from 3.3% to 4.7% from 2000 to 2001. Prior to 2001, White and African American women experienced comparable percentages of multiple births compared to all other race/ethnicity groups over the years (see Figure 47). Hispanic and Native American women experienced the lowest percentages of multiple births.

B. NEONATAL INTENSIVE CARE

During 2001, 3,173 newborn babies were placed in the neonatal intensive care unit (NICU), representing 5.7% of all births. The percent of newborns that were placed in the NICU decreased from a high of 7.4% in 1998 to 5.7% in 2001 (see Figure 48). The number of babies enrolled in the Office of Women and Children's Health Newborn Intensive Care Program (NICP) for the year 2000 was 3,002¹⁵.

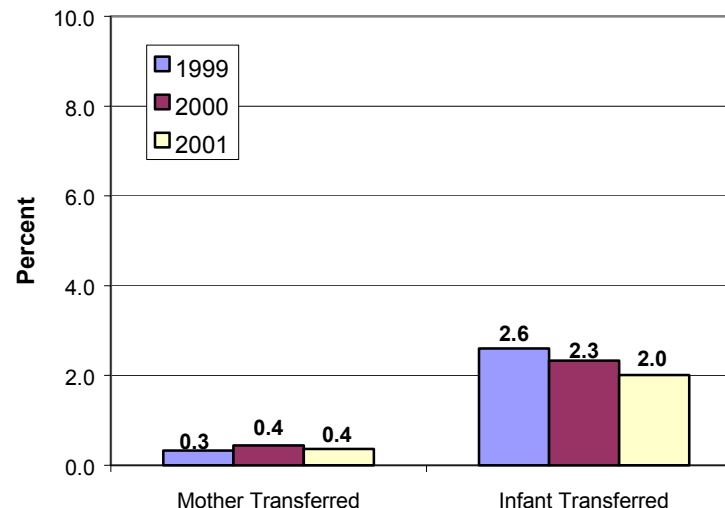
Figure 48. Percent of Newborns Transferred to Neonatal Intensive Care Unit (NICU), Maricopa County, AZ 1997-2001



C. MATERNAL AND NEWBORN TRANSFERS

Maternal and newborn transfers between facilities suggest that the necessary level of care was not available at the delivery facility. Whenever possible, it is preferable to send mothers to an appropriate level facility before giving birth. In 2001, 1,120 infants were transferred from one facility to another (2.0%). Mothers transferred from one facility to another represented 0.4% (202) of women who gave birth (see Figure 49).

Figure 49. Percent of Mothers and Newborns Transferred to Another Facility, Maricopa County, AZ 1999-2001



SECTION XII. KEY POINTS

- According to the 2000 U.S. Census, Maricopa County is the fourth most populous county in the United States, with a population of 3,072,149, having grown 44.8% in the ten years between 1990 and 2000.
- There were 55,624 births in Maricopa County in 2001, an increase of 18% over the previous five years (see Table 2).
- Although Hispanics comprise only 27.2% of the women of childbearing age in the county, they have high birth rates, thus accounting for 41% of the births. Although still the highest birth rate among all races/ethnicities, the Hispanic birth rate decreased greatly from 1995 to 2001 (from 147.4 to 123.0 births per 1,000 Hispanic women between the ages of 15 and 44 years) (see Figures 5 and 11).
- The percentage of women giving birth with less than 12 years of education has increased slightly in the last five years from 28.4% to 31.0%. This proportion varied widely among races/ethnicities, from a low of 8.7% for Asians to a high of 56% for Hispanics (see Figures 13-14).
- The gap in infant mortality between mothers with less than 12 years of education and those with 12 years or more seems to be narrowing. However, those with less education still experience higher infant mortality (see Figure 40).
- The infant mortality rate steadily decreased from 1998 to 2001 to 6.2 per 1,000 live births. If this rate of decrease is sustained, Maricopa County should reach the HP2010 goal of 4.5 infant deaths per 1,000 live births by 2010.
- The proportion of births paid for by the Arizona Health Care Cost Containment System increased from 42.9% in 1999 to 43.9% in 2001. This could be a function of several factors, among them the economic downturn (unemployment rates increased in 2001) and the increased educational campaigns regarding enrollment in Kids Care as a result of Prop 204 (see Figure 15).
- 20.5% (11,404) of women delivering in 2001 did not enter prenatal care during their first trimester of pregnancy. Of those, 864 (1.6%) women did not have prenatal care and 1,897 (3.4%) began prenatal care in the third trimester (see Figure 20).
- From 1997 to 2001, there has been a slight improvement in the percentage of women with no prenatal care or with fewer than five prenatal care visits, from 6% to 5% (see Figure 24).
- Young age and low education level are risk factors for late entry into prenatal care, low birth weight, prematurity, and infant mortality (see Figures 22-23, 26, 28, 29, 32, 38-40, 45).
- Maricopa County mothers abstaining from cigarette and alcohol use during pregnancy has steadily increased from 1997 to 2001. Mothers have successfully reached the Healthy People 2000 and 2010 objective for alcohol abstinence of 95% each year from 1997 to 2001. They also reached the Healthy People 2000 objective for cigarette abstinence of 90%. The Maricopa County mothers have not reached the Healthy

People 2010 objective of 99% cigarette abstinence (see Figures 18-19).

- Women in the 40 and older age group experienced higher percentages of multiple births than all other age groups from 1997-2001, reaching a high of 7.3% in 2001 (see Figure 46).
- The percent of births to teens aged 15-17 years among all births has decreased from 5.4% to 4.5% from 1997 to 2001. Native American and Hispanic teens have the highest teen births rate (130.7 and 128.6, respectively) (see Figures 41 and 43).
- African Americans experience much higher rates of infant mortality (13.2 to 16.8 from 1997 to 2001) and higher percentages of low birth weight births (13.6% to 14.0% from 1997 to 2001) than all other race/ethnicities (see Figures 30-31, and 34-36).
- According to the Maricopa County data, women with low education levels tend to lack insurance and access to prenatal care, probably due to low incomes and low paying jobs. The data in this report suggest that they also have a greater risk of delivering a low birth weight baby and have a higher infant mortality rate.

SECTION XIII. REFERENCES

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³ U.S. Department of Health and Human Services. *Healthy People 2010: Understanding and Improving Health*. 2nd ed. Washington, DC: U.S. Government Printing Office, November 2000.

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⁵ Martin JA, Park MM, Sutton PD. Births: Preliminary data for 2001. *National Vital Statistics Reports*; Vol 50 no 10. Hyattsville, Maryland: National Center for Health Statistics. 2002.

⁶ *Table DP-1. Profile of General Demographic Characteristics: 2000. Geographic Area: Maricopa County, Arizona*. U.S. Census Bureau, Census 2000 Redistricting Data (P.L. 94-171) Summary File and 1990 Census. Internet release date: April 2, 2001.

⁷ *Table 2: Counties Ranked by Population 2000*. U.S. Census Bureau, Census 2000.

⁸ *Poverty in 1999 by 2000 Census, Sample Demographic Profiles*. U.S. Census Bureau, Census 2000.

⁹ *Table 2: Population Projections by Age and Sex*. Population Statistics Unit, Arizona Department of Economic Security. February 1997.

¹⁰ Maricopa County Female Population by Race and Age. U.S. Census 2000 data, Summary File. Data received from the Arizona Department of Economic Security, 6-19-02 by email.

¹¹ *Population Statistics, 1995 Special Census of Maricopa County*. Arizona Department of Economic Security, Division of Employee Services and Support, Research Administration.

¹² *Special Unemployment Report*. Arizona Unemployment Statistics Program, Research Administration, Arizona Department of Economic Security.
<http://www.de.state.az.us/links/economic/webpage/page4.html>

¹³ *Local Area Personal Income, Arizona, CAI-3 – Per capita personal income2/(dollars)*. Bureau of Economic Analysis, Regional Accounts Data.

¹⁴ *Local Area Personal Income, Arizona, CAI-3 – Per capita personal income, percent of US 2/*. Bureau of Economic Analysis, Regional Accounts Data.

¹⁵ *Neonatal Infant Care Program Number*. Data received verbally from NICP program manager at ADHS.



Request Form for Data Information

Maricopa County Department of Public Health, Division of Epidemiology and Bio-Defense Preparedness and Response
1825 E. Roosevelt Street, Phoenix, AZ 85006
Phone (602) 506-6825 FAX (602) 506-6434

Office Use Only			
Distribution:	Mail _____	Fax _____	Pick-up _____
Check Completed:	Mailed _____	Faxed _____	Picked-up _____

Date of Request: ____/____/____

Date Needed: (Allow minimum of 2 weeks): ____/____/____

Requester Name: _____

Address: _____

Phone: _____

Fax: _____

Requester Affiliation: _____

☐

Profit Org

☐

Non-Profit Org

☐

County Agency

☐

Student/Faculty

☐

State Agency

☐

Other

Purpose of Information: _____

Please request only information you need. Unusually lengthy requests require much more staff and computer time and will result in greater preparation time and, possibly, client charges. Note that only data for Maricopa County are available from the county.

MISCELLANEOUS NOTES AND INSTRUCTIONS:

FOR OFFICE USE ONLY:

Completed by: _____ Date: ____/____/____

Time: _____

Completed by: _____ Date: ____/____/____

Time: _____

NATALITY (BIRTH) DATA REQUESTED

Time period(s) (1988 on available) (years and/or months): _____

Area(s) (must be census tracts, Health Status Areas, cities, or zip codes (available after 1999)): _____

All Births: ☐

Single Births Only: ☐

Multiple Births Only: ☐

Data Available (check only those needed):

Mother's age: ☐

Adolescent age group: ☐

Race/ethnicity: ☐

Education: ☐

Marital status: ☐

Child's sex: ☐

Birth weight: ☐

No. of prenatal visits: ☐

Trimester care began: ☐

Institution of birth: ☐

Gestational age: ☐

MORTALITY (DEATH) DATA REQUESTED

Time period(s) (1988 on available) (Years and/or Months): _____

Area(s) (must be census tracts, Health Status Areas, cities, or zip codes (available after 1999)): _____

19 Main Causes of Death: ☐

OR: Specific Cause(s): _____

Data Available (check only those needed):

Age: ☐

Race/ethnicity: ☐

Sex: ☐

Marital status: ☐

Education level: ☐

Infant mortality age components: ☐

Resident city at death: ☐

OTHER DATA/INFORMATION

Census data by year and age/race/sex for Health Status Areas only:

Time period(s) (years only): _____

Health Status Area(s): _____

** Other census data can be obtained from the Arizona State Department of Economic Security, Population Statistics unit, or from the ASU or County library.

(Please note that additional census data are available for Department of Public Health personnel.)

Specialized data are available from other databases. Please contact our office to discuss these data:

a. Hospital discharge data

b. Behavioral Risk Factor Survey (BRFS)

**2002 Maricopa County Maternal and Child Health Needs Assessment
Five-Minute Users Survey**

We want this document to be useful to you. Your reaction to this document is important to us. Please respond to the following questions within 30 days of receipt. Feel free to provide additional comments. After completion of this survey, FAX it to Rose Howe, Family Health Partnerships Manager at (602) 506-6444. Thank you.

Your name: _____ Phone: _____

1. Have you had a chance to use this Needs Assessment? ☐ Yes ☐ No
If yes, what have you used it for? (Please check all that apply)
☐ Grant Writing ☐ Develop new intervention ☐ Policy development
☐ Devise outreach strategies ☐ Other-Please specify. _____
2. Would you like to receive this document every year? ☐ Yes ☐ No
3. Have you viewed this document on our website at: ☐ Yes ☐ No
http://www.maricopa.gov/public_health/epi.asp?
4. Which aspect of the needs assessment did you find most helpful?
5. Which aspect did you find least helpful?
6. Is there a colleague you feel would benefit from receiving this needs assessment? ☐ Yes ☐ No
Please provide name and address:
7. What recommendations would you make to improve this document?